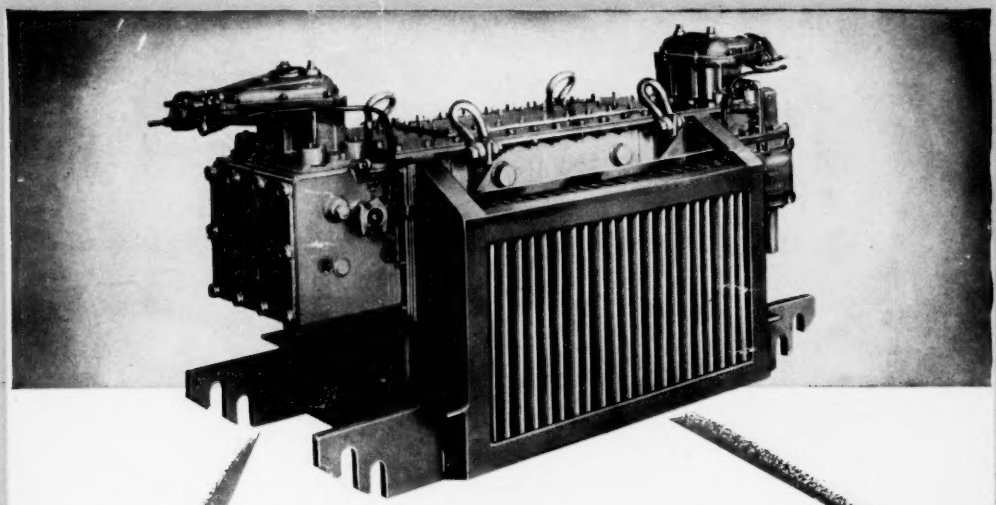
The Mining Journal

Established 1835 — Railway & Commercial Gazette

Vol. CCXXXVIII No. 6096 — LONDON, JUNE 20, 1952 — PRICE 8d



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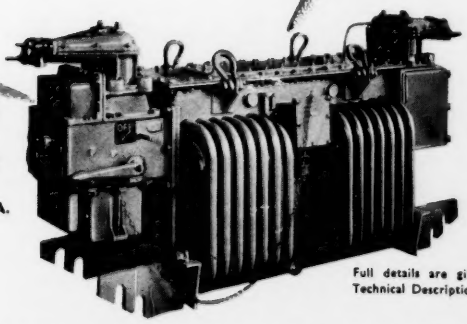

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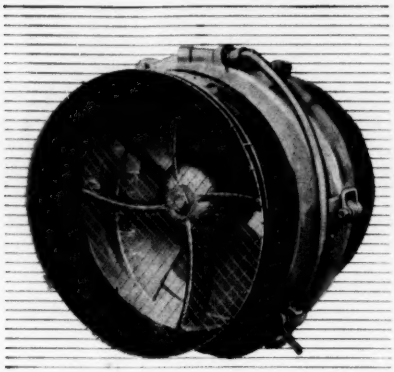

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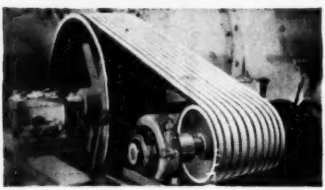

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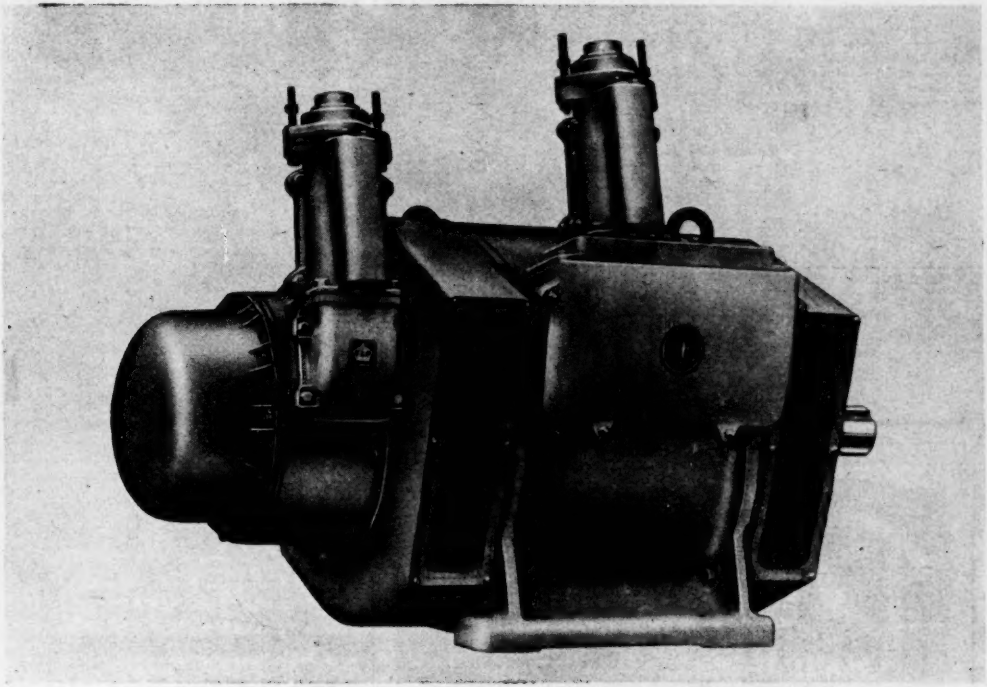

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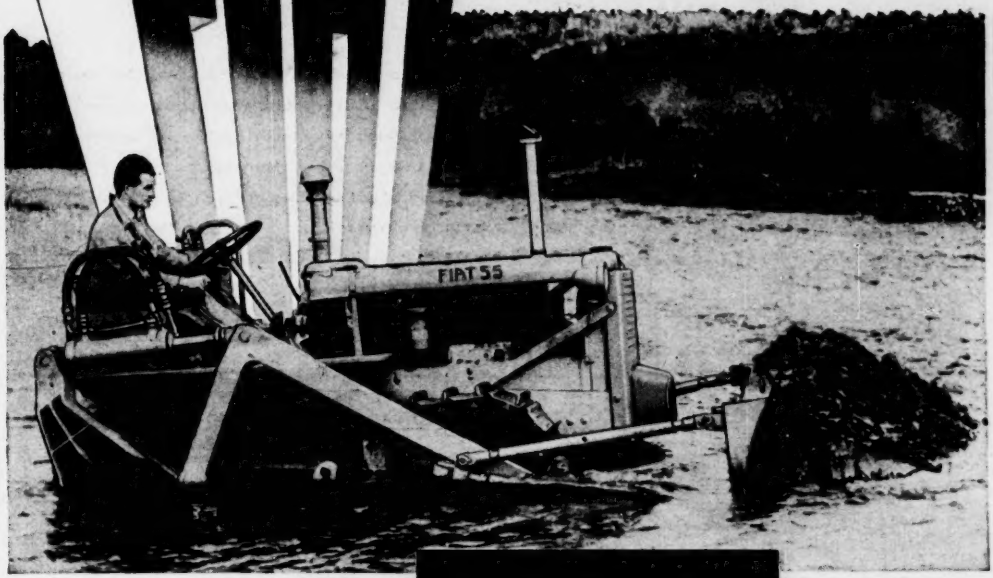

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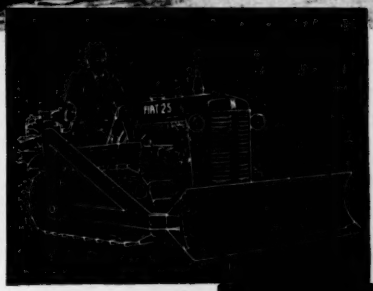

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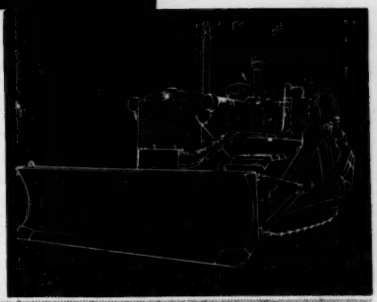

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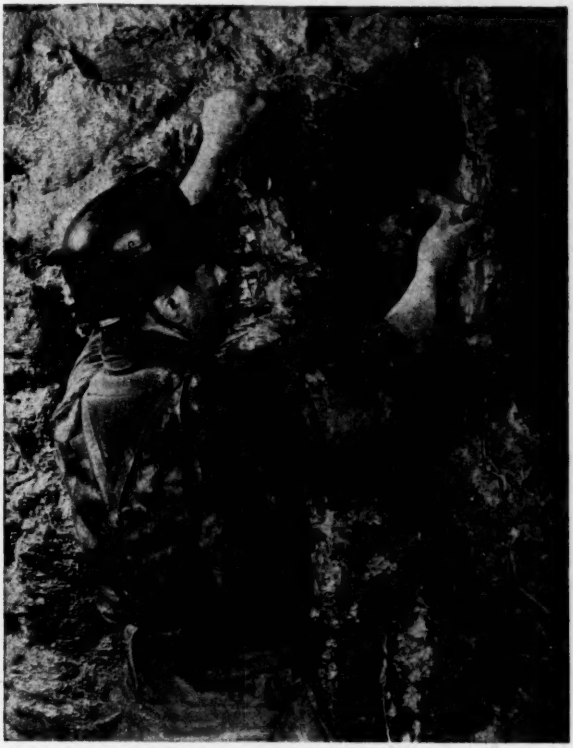

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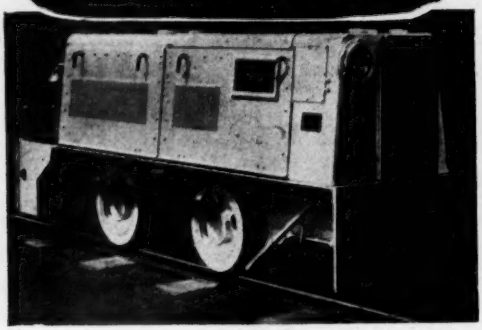
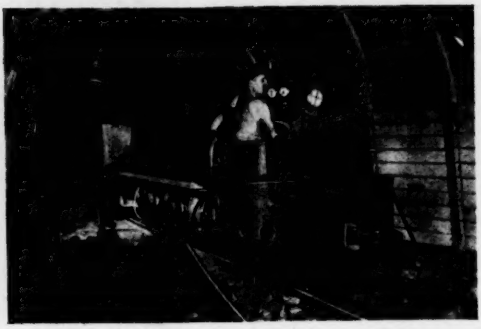
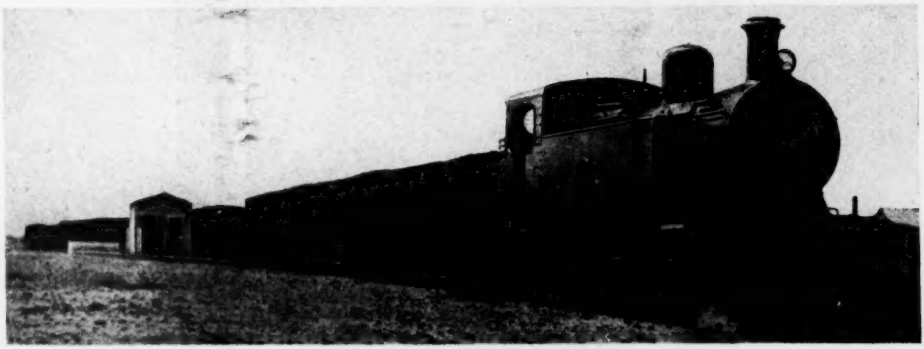


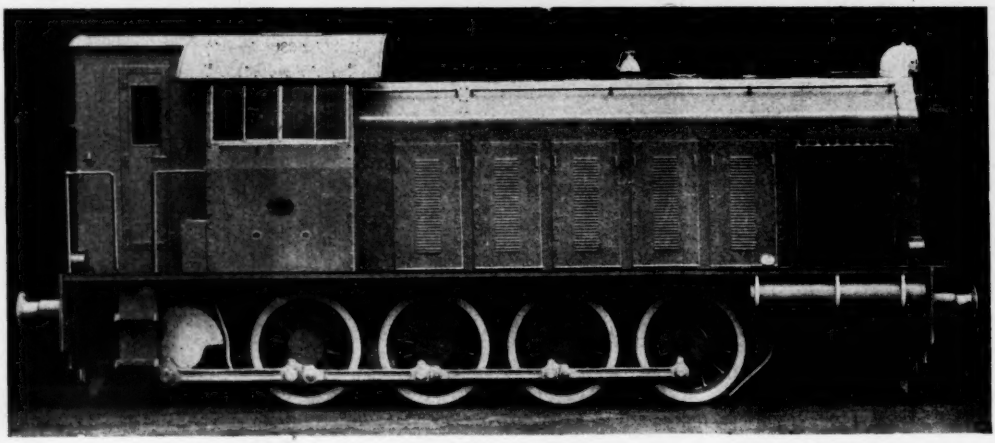
The latest Hunslet underground diesel; 45 h.p. 5 tons, 10 m.p.h.



Largest Hunslet fully-flameproof diesel; 100 h.p., 15 tons, 15 m.p.h.



48-ton Hunslet eight-coupled steam locomotive on 650-ton train, Nchanga copper mines, Rhodesia



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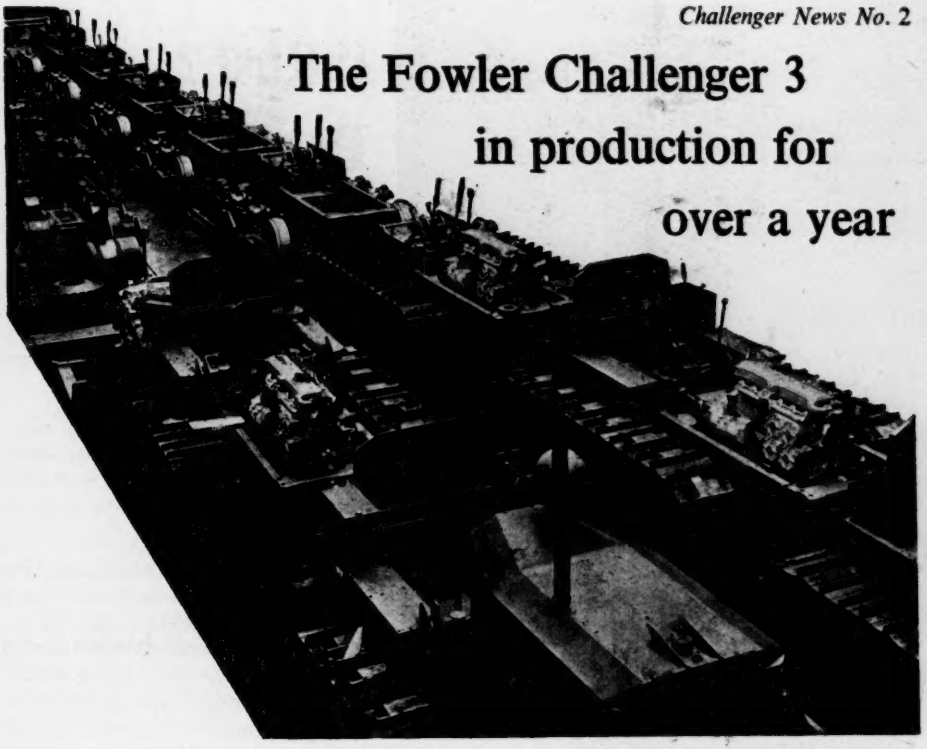

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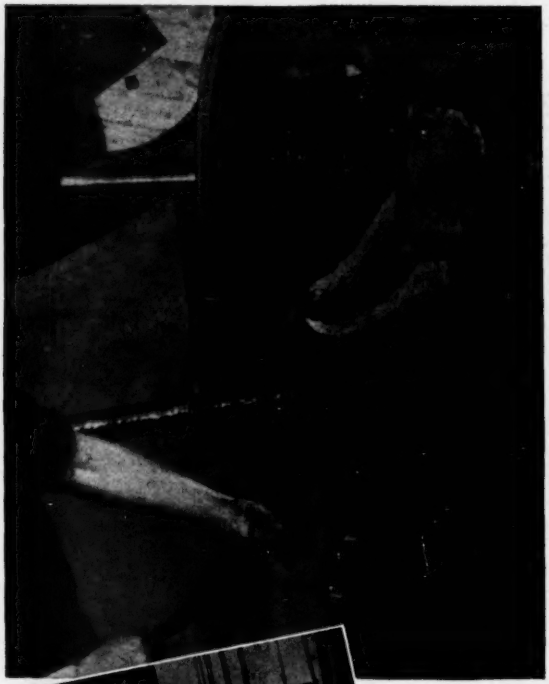

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The Mining Journal
Established 1835

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Published by The Mining Journal Ltd. at 15, George Street, London, E.C.4. *Subscription £2 per annum (post free)*

NOTES AND COMMENTS

Copper Jumps £50 a Ton

The instability of the copper market has been strikingly illustrated by the hoisting of the U.K. price by no less than £50 a ton on Monday. This illustrates the vulnerability of the artificial situation to action by foreign producers not interested in the success or failure of agencies seeking to control supplies or prices.

Among the associated nations of the West, Chile having made an agreement with the U.S. last year by which 80 per cent of her copper output was deliverable to the U.S. at an agreed price subsequently repudiated it on May 8 and decided to sell all her output for what it would fetch with a reported minimum price of 35½c. per lb. This has resulted in the U.S. world export price being raised to around 36.5c., and the Ministry of Materials raised its price from £237 to £281 per ton. This is a very serious step, for although aluminium interests will no doubt welcome it, consumers generally will be distressed and will ask what is the Government going to do to assist the industries which will be hit.

Mr. Butler, like preceding Chancellors of the Exchequer, seems slow to realize the validity of the principle of contradiction. He appeals fervently to the British industrialists and traders for an increased drive to enlarge our exports, especially to hard currency countries and then countenances the policy of price manipulation for the metals, especially copper, which forces them to pay £50 a ton more from Saturday to Monday, rather than that the Ministry of Materials should risk selling at a loss.

Whatever the price to which copper might possibly have soared in a free copper market, no one would suggest that we should have experienced such a fluctuation as this in successive day's quotations, amounting to almost the entire value of the metal at the outbreak of war. Moreover, in the London Metal Exchange free market the manufacturer could at least have hedged his requirements for three to six months or more, and so have been able to estimate fairly closely what his finished fabrications would cost him so far as the red metal was concerned. We frequently hear, often through Governmental sources, the complaint that besides delay in execution or possible deviation of orders British manufacturers send out specifications or samples without any indication of actual prices. What else can they do if suddenly they may find themselves faced by revaluation of a vital element in their raw material needs on such an enormous scale?

Mr. Butler pleads that he cannot allow the resumption of free trading in the metals lest our adverse currency position would be further endangered, but the loss of export trade, to say nothing of the curtailment of home trade and employment, caused by the present price incalculability may easily prove more damaging and extended. So far metal price control by the Ministry of Supply, and more lately by the Ministry of Materials, has pursued a policy of extemporization resulting generally in premiums over the U.S. price.

This handicap to trade might be justified if we had secured stocks of metal which would protect the Government against such knockout blows as an increase of £50 in the copper price in a single stroke. Some little time before the war a leading copper dealer offered to hold at the Government's disposal 50,000 tons of copper without commission and in complete secrecy, as an insurance against possible war, but without any result except that the price rose and the Government had to pay more. To-day, with a free market suppressed, such co-operation from a private source would be out of the question.

The Ministry of Materials is understood to be negotiating with Northern Rhodesian and Canadian copper producers in the hope that these will agree to accepting what the Ministry regards as a more reasonable level of prices than those now ruling in the United States, though it is obviously undesirable that these interests should be called upon to deny themselves advantages enjoyed by foreign producers, and may conceivably complicate their position in regard to wage increase demands based on the full advance in prices.

The whole copper position remains extremely involved. It is yet to be seen how much copper Chile will succeed in selling at the price they are now getting and what loss in consumption to other metals as foreseen by Mr. Samuel Anderson in his paper on the outlook for aluminium noticed in our issue last week may result from such a staggering advance in the price of copper.

Development of Nigeria's Low-Grade Deposits Under Review

The new mining possibilities opened up in Nigeria by the recent discovery there of uranium ore was the subject of a note in these columns in our issue of June 6 last. Thus, the statement issued at the end of last week by the Nigerian Council of Ministers concerning the uranium ore discovery will be of particular interest.

For some years, the statement declares, the Nigerian Government has been aware of the existence of large, low-grade deposits of pyrochlore, the mineral which forms a potential source of the rare metal, niobium, and of uranium, the source of atomic energy. To obtain information as to the extent and potential value of the known Nigerian deposits, a joint investigation was carried out in 1950 by the Atomic Energy division of the Geological Survey of Great Britain and the Government of Nigeria.

Publicity at the time, it is stated, would have given rise to speculative pegging by mining companies and it was therefore considered wise to give no publicity until the results of the investigation were available and the precise areas involved were known to the Government, as only then could effective action be taken to close the area to prospecting. This has now been done.

Much research remains to be done before the economic possibilities of the deposits can be assessed. In particular, research will be necessary in order to discover an economic process by which the uranium and niobium can be extracted. But if this research can be successfully completed, these deposits, which are the first important recorded source of uranium in West Africa, may become an important element in the Nigerian economy. For this reason the best means of developing the deposits is being examined by the council of ministers.

The difficulty of extracting natural uranium in low-grade deposits in the earth's crust is a problem which United Kingdom scientists at Harwell are currently investigating, and in the recent H.M.S.O. publication, *Harwell*, the comment is made that while only quite rich deposits of uranium have so far been worked the increasing demand for uranium will make it necessary to work much lower grade deposits, and unless they can be worked cheaply and efficiently the application of nuclear energy to power production may never be economic. Therefore, a mineral-dressing laboratory has been set up in the Chemical Engineering Division, the main function of which is to develop methods for the concentration of the uranium containing minerals of low grade ores.

This laboratory is mainly concerned with physical means of concentration and works in close collaboration with two of the Department of Scientific and Industrial Research Establishments, the Geological Survey which advises on matters connected with the occurrence of minerals, and the Chemical Research Laboratory, which is responsible for research on their chemical processing.

Radioactive Thorite in Southern Rhodesia

Discovery of the first known occurrence of radioactive thorite in Southern Rhodesia has been announced by Mr. J. C. Ferguson, the Director of Geological Survey, in his annual report. A concentrate from a radioactive granite pegged near Beitbridge by Mr. L. C. Byerley was sent for examination to Dr. C. F. Davidson, Chief Geologist of the Atomic Energy Division of the Geological Survey of Great Britain.

It was found to contain allanite, magnetite, sphene, thorite, zircon and possibly euxenite, about two-thirds of the radioactivity being due to the thorite. Chemical analysis in Salisbury showed 0.046 per cent U_3O_8 and 0.14 per cent ThO_2. The concentration of uranium and thorium in the rock is too low for commercial exploitation at present.

Correspondence

APATHY—THE DANGER TO THE AUSTRALIAN MINING INDUSTRY

To the Editor, *The Mining Journal*.

Sir,—In to-day's issue of the Melbourne *Age*, a most interesting article appears dealing with the general apathy to mining in Australia. The article apparently originated in your journal, since reference is made to it (*The Mining Journal*, April 11, 1952, p. 363).

I wish to compliment you on the article, which is forthright and correct. The general tendency, with few exceptions, is to supply small amounts of capital to explore a property, go ahead with minor development and then stop work when progress is such that further work is recommended and justified.

The number of pilot plants operating throughout Australia to-day can be counted on the fingers of one hand. The old spirit of prospecting to prove a property is not seen to-day. Yet this country offers more than any other in the field of mineral investigation.

The writer has had recent experience in the poor approach to investigation on such important strategic minerals as wolfram and scheelite. Considering the high prices of these minerals you would think that capital to develop a worth while property would be readily forthcoming but nothing could be further from the truth.

The article referred to in the *Age* would do more good than can be imagined at this stage.

Regarding the beach sand areas on the north coast of New South Wales, I am able to give you first hand information as I am directly concerned with the largest area between Evans Head and Iluka. It is correct that the R.A.A.F. is in possession of a considerable tract of territory within the boundaries of areas held by my organization. These areas were originally inspected by me and later a pilot plant installed and operated under my control to prove heavy mineral concentrate contents.

The R.A.A.F. area is at the extreme northern end of the total area. The approximate length of the beach section is 16 miles and the width of the mineral bearing section about a half mile. Of this amount the R.A.A.F. would not cover more than four miles by a half mile. Moreover, I do not think that the said area is particularly rich in mineral.

The main area is held by Rucon Ltd. (now Woodburn Minerals Ltd.) and has a capital of sufficient size to enable the company to attack the problem in a serious way and produce upwards of 200 tons of bulk mineral concentrate per week at the concentration plant located at the beach and the separation plant in Woodburn to produce the final products.

You will be interested to know that contained in the concentrate is a considerable quantity of tin oxide. One section close drilled gave 6.9 lb. of this material per ton of mineral. The particular section, drilled to static water level (e.g. 9 ft.) gave 55,000 tons of bulk mineral. The tin content is easily calculated. Below water level the tin oxide content was 3 lb. per cu. yd. proved by scout drilling.

The areas are of immense importance to our country and to our friendly allies, notably in the United States, yet we have experienced great difficulty in bringing the powers that be to understand just what the mineral deposits mean to the country. Regardless of the brand of politics in vogue at any time in this country it makes not the slightest difference to the mining industry. This deplorable state is directly due to the political opportunists in charge of the country from time to time, since these individuals are mainly concerned with personal advantages and not the welfare of the nation.

I do not believe that there is the slightest possibility of pleasure resorts being established along the beach in question, for a number of reasons. The R.A.A.F. has declared its area a closed section, the whole area is a declared sanctuary for fauna and flora. The terrain is largely a swamp covered in scrub and alive with snakes. There is no approach from anywhere and the beach will be worked to low water mark by my organization since we have a title covering such condition.

I am confident that this year will see large scale operations in progress on the particular beach by Woodburn Minerals Ltd.

Finally, I thank you very much for your article, and I am sure the mining profession in this country will benefit by it.

3, Queen's Road,
Melbourne, May 31.

Yours very truly,
JOHN W. GREIG.
M.A.I.M.E., M.I.M., A.F.A.I.M.

Canada

(From Our Own Correspondent)

Sudbury, June 2

Falconbridge Nickel Mines is securing good results from the new process introduced in the company's refinery in Norway. The results obtained have indicated the plant will be able to exceed the estimated capacity of 30,000,000 lb. of nickel and copper annually. Already some thought has been given to plans to increase capacity to 40,000,000 lb. annually as soon as output from the Falconbridge Mines at Sudbury can be raised to that level. The new process also provides for the recovery of cobalt, which metal is now being refined with increasing efficiency accordingly as experience is gained.

ENCOURAGEMENT FOR GOLD PRODUCERS

Gold producers have been encouraged by the recent slight increase in free market gold prices. Operators were this week receiving close to $37 Canadian currency f.o.b. airports in Ontario and Quebec. Meanwhile, the Canadian Government has introduced a Bill to extend the Emergency Gold Mining Assistance Act for another two years. The opinion is widespread that continued demand for gold on the free market will soon induce additional producers to seek outlet for their product in that direction rather than lean upon the E.G.M.A. Gold miners are watching the trend of international affairs. They share the belief that another world war would intensify their difficulties to a greater extent than ever before. On the other hand, they foresee an era of prosperity for the gold mines should Russia and her satellites decide to follow the path of peace in conformity with the desires of the free and democratic nations of the world. Pending a more definite trend than that of the present they have no recourse but to work and wait and wonder. In areas where gold mining still remains active in Canada there is evidence indicative of the growth which might be expected under more favourable economic conditions. One such instance has occurred at the comparatively young East Malartic Mine in Quebec. At the 16th level an ore body has been disclosed which has a width of 125 ft. and a length so far determined of 500 ft. The ore contains close to $8 gold per ton. There is an estimated 5,200 tons per vertical foot, or some $40,000. This suggests $4,000,000 per 100 ft. in depth—or a rate of $40,000,000 per 1,000 ft. in depth should this deposit persist. It is such instances as this which encourage miners in their efforts no matter what the handicaps.

As exploration and development continues of the Opemiska Copper mines in northern Quebec there are growing indications of an important copper-gold producing mine in the making. The company is controlled by Hoyle Mining Co. which in turn is a subsidiary of Ventures Ltd. In addition to the deposits already under exploration and development in preparation for production is a recent diamond drill hole which intersected another zone of approximately 11 ft. in width carrying 12.27 per cent copper, or a gross metal content of $70.00 per ton at current metal price. Success on the Opemiska mine has encouraged plans for development of other properties in the immediate neighbourhood.

SHORTAGE OF TRAINED PERSONNEL

A serious scarcity of mining engineers, metallurgists and geologists is developing in Canada. This is becoming intensified accordingly as the scope of mining increases. With the industry producing now at the rate of over $100,000,000 per month, and with expansion in evidence in nearly every province from coast to coast, the scarcity of engineers has become alarming. A survey of universities throughout the country reveals the discouraging fact that graduates in 1953 will be even less than in 1952.

This situation was mentioned in *The Mining Journal* of May 16, when it was reported that the Hon. W. S. Gemmel, Minister of Mines, Ontario, had stated that it was almost impossible to obtain geologists for that branch of the Department. It was thought that owing to this shortage the number of field parties during the current year might be reduced.

A new era in the building of railways is in prospect for Canada. In the past, the demand was largely for main trunk lines running from east to west—transcontinental lines paralleling each other across the continent from the Atlantic seaboard to the Pacific coast. Now the time has come to place new emphasis on the job of providing rail transportation northward as a means of tapping the resources of the vast undeveloped areas of the farther north, and thereby funnel such resources down to the industrial centres of the southern sections of the nation. Aeroplanes are paving the way to initial stages of new development but it will remain for highways and railways to consolidate the progress made—and to establish centres from which further strides may be made into undeveloped areas still farther on.

CAPITAL INFLOW FROM THE U.K. INCREASING

There has been a recent increase in the amount of money coming from England for participation in mining and other industries in Canada. The two world wars brought a serious decline in the number of English names and addresses on the shareholders' lists of Canadian mining companies. This was particularly true during the second world war and the years immediately following. It is the cause of considerable satisfaction to once more witness the resumption of interest of capital from Great Britain in the mining industry of Canada. Such capital cannot fail to lend impetus to development of natural resources, and is highly welcomed in this new country. The frontier of 4,000 miles does seem to offer scope for profitable employment of cash and ingenuity—especially so in light of the success attained on the borders of the remaining virgin frontier.

Deloro Smelting & Refining Co., is making good progress in the work of modernization of its plant for the treatment of cobalt-silver ores and concentrates. The programme of expansion and modernization is about 50 per cent finished and will cost about $8,000,000 when complete. Already the plant is turning out close to 50 tons of cobalt monthly and more than 20 tons of silver every 30 days. About 50 per cent of the cobalt being turned out is derived from ore and concentrates coming from the old mining field of Cobalt. The company is the sole purchaser of cobalt for the Canadian Government stockpile, and started off with an initial purchase goal of 600,000 lb. of the metal.

National Coal Board Report 1951

(From Our Coal Correspondent)

A review of the coal industry during the first five years of public ownership provides a background to the Report for 1951 and for this reason it is of more than usual interest. The text occupies 100 pages and is divided into eight chapters under the following headings: Results of the First Five Years; Manpower and Productivity; Developments in the Mines; Marketing the Coal; Carbonisation and Other Activities; Science in the Industry; The Board as Employer and The Year in Each Coalfield. The remainder of the 263 pages are devoted to detailed accounts, statistical tables and appendices.

The main inference to be drawn from the Report is that all might have been well with the industry if the hopes entertained by the Government of bringing the labour force up to 730,000 had been realized. The average number employed during the period under review was 710,000 but during 1951 it fell to 699,000. This deficiency in manpower has had more serious consequences than is generally realized. In the first place the urgent demand for coal made it impossible, with depleted labour resources, to suspend operations for much needed reconstruction at several pits and important work on new projects was seriously hindered because all the available experienced miners had to be kept on production. In the second place, it made it necessary to import 1,200,000 tons of coal during the year at a cost which involved the Board in a loss of £5,500,000 with the result that the accounts show a deficit of £1,800,000 on the year's work.

Table 1

SUMMARY OF INCOME AND EXPENDITURE, 1951*

INCOME	£
Coal	521,300,000
Coke	28,600,000
Gas, tar and by-products	13,900,000
Briquettes and patent fuel	6,100,000
Bricks, tiles and pipes	2,900,000
Farm produce and live-stock	400,000
Miscellaneous products	1,500,000
Services, wagon repairs, etc.	5,000,000
	579,700,000
Less sales in N.C.B. organization	43,900,000
	535,800,000
Other receipts	5,300,000
Total Income	541,100,000

EXPENDITURE	£	% of total
Wages and holiday pay	334,700,000	61.7
Workmen's compensation	13,300,000	2.4
Salaries	19,700,000	3.6
Pensions	6,400,000	1.2
Materials, power and repairs	110,600,000	20.4
Other expenses	18,000,000	3.3
Depreciation	23,700,000	4.3
Profits tax	2,000,000	0.4
Interest and interim income	14,500,000	2.7
Total Expenditure	542,900,000	100.0

*Excess of expenditure over income £1,800,000

RESULTS OF THE FIRST FIVE YEARS

The returns from the collieries during the first five years are summarized in Table 2. They show that the output of deep-mined coal was 13 per cent higher in 1951 than in 1947 although the number of workers had dropped by 1.68 cent. The output per man-shift in 1951 was the highest ever recorded in Great Britain and it was higher than in any other western European country except Holland. A working profit is shown for each year except the first, but the operating costs given in this table do not include capital charges. The average pit-head price of coal at the end of 1951 was 27 per cent higher than at the end of 1947 but during the intervening period there was a rise of 70 per cent in the wholesale prices of commodities in general.

Table 2

COLLIERY RETURNS 1947-1951

Year	1947	1948	1949	1950	1951	1951 compared with 1947 ±		% ±
			Output in million tons					
Deep mines	187.2	197.6	202.7	204.1	211.9	+24.7	Increase	+13
Open cast	10.2	11.7	12.4	12.2	11.0	+0.8	,,	+7.8
Total	197.4	209.3	215.1	216.3	222.9	+25.5	,,	+12.9
			Manpower in thousands					
At coal face	288	293	296	288	287	−1.0	Decrease	−0.34
Other workers	423	431	423	409	411	−12	,,	−2.83
Total	711	724	720	697	699	−12	,,	−1.68
			Tons per man-shift					
Face workers	2.86	2.92	3.02	3.11	3.17	+0.31	Increase	+11
All workers	1.07	1.11	1.16	1.19	1.21	+0.14	,,	+13
			*Average earnings per man-shift**					
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.		
Face workers	36 10	41 1	43 1	44 10	48 6	+11 8	,,	+31.6
All workers	28 10	33 1	34 4	35 6	38 10	+10 0	,,	+35
			Colliery operating results†					
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.		
Proceeds per ton	40 3	47 3	47 11	47 10	51 2	+10 11	,,	+27
Costs per ton	41 3	45 7	45 0	45 5	49 2	+ 7 11	,,	+19.2
Profit or loss	−1 0	+1 8	+2 11	+2 5	+2 0	+3 0	,,	

*Including allowances in kind. †Before adding capital charges.

Table 3

FINANCIAL RESULTS, 1947-1951

	1947	1948	1949	1950	1951
Operating profits (£ millions)					
Collieries	−9.2	+16.2	+29.4	+24.2	+21.2
Coke ovens	+0.9	+0.5	+0.9	+1.0	+1.1
Other activities	+2.1	+0.8	+0.8	+1.3	+1.7
Other income less interest payable	+0.1	+0.6	−0.1	−0.2	−0.2
Compensation for loss of office	−0.4	−0.8	−0.8	−0.7	—
Workmens' compensation (additional)	—	—	−4.0	—	−1.6
Loss on imported coal	−1.7	—	—	−0.3	−5.5
Profits tax	—	—	−3.5	−2.5	−2.0
Miners' pension contributions	—	—	—	—	−2.0
Interest and interim income	−15.1	−15.6	−13.2	−14.5	−14.5
Surplus or deficiency	−23.3	+1.7	+9.5	+8.3	−1.8
Net deficiency (cumulative) on revenue accounts including 0.2 from 1946	−23.5	−21.8	−12.3	−4.0	−5.8

The general financial results for the five years are shown in Table 3. These cover the ancillary undertakings vested in the Board in addition to the collieries by the Nationalization Act. The interim income payable to the Minister of Fuel and Power includes the annual repayment on the loan obtained from the Government in 1947 for capital developments and also the interest on the outstanding amounts of compensation due to the former colliery concerns for which the Board are ultimately responsible. For the third time during the year an increase in wages was granted to the miners in November but the adjustment in the price of coal to meet this extra charge was not made until the beginning of 1952 and the loss incurred thereby also contributed to the financial deficit at the end of the year.

MANPOWER AND PRODUCTIVITY

There was a net gain of 9,307 workers in 1951 but the total number on colliery books at the end of the year was only 698,000. The number of juveniles recruited was 20,000 compared with 15,000 in 1950 but 7,600 men between the ages of 21 and 30 left the industry during the year. The average age among the miners is now 40.5 years and it is still going up. The Board with the help of the Government endeavoured to improve the labour situation by raising wages, by exempting young miners from military service, by allocating more houses to the mining areas and by raising the standard of the pit welfare services. The scheme to bring Italian workers into the industry was unsuccessful but there are still about 10,000 foreign workers in the pits out of the 18,000 who entered the industry during and after the war.

DEVELOPMENTS IN THE MINES

Technical developments are being carried out largely in accordance with the recommendations made by the Reid Committee,* particularly in connection with the layout of mines on the horizon system to enable locomotives to be used for main haulage and also in connection with

skip winding. There were 450 locomotives at work at the end of 1951, of which 390 were of the Diesel type and 60 of the battery type. The use of trolley-wire locomotives is prohibited by the Coal Mines Act, but special permission was given in 1951 by the Chief Inspector of Mines for the installation of a trolley wire system at one colliery as an experiment.

Where the gradients are unfavourable to locomotives, trunk conveyors are being used in preference to rope haulage in all new installations, and often in the reconstruction of old mines. In October, 1951 the Minister of Fuel and Power gave formal approval to the proposals put forward by the Board in their Plan for Coal subject to any future amendments that may be called for by changes in Government policy on capital investments. By the end of the year the Board had given their approval for the opening of seven new collieries with vertical shafts and 60 new drift mines and also for the reconstruction of 81 existing collieries. This programme will involve the sinking of 21 new shafts and the deepening of 31 others and it has been estimated that it will cost £115,000,000 at prices current in 1949.

Since the publication of the Report this aspect of the Board's work has been severely criticized in the lay Press on the ground that only £26,500,000 was spent on developments in 1951 whereas the Board had previously stated that at least £38,000,000 would have to be spent every year from 1951 to 1955 to make it possible to bring the annual output up to 240,000,000 tons by 1965. It takes from five to six years to bring a new colliery into production and a further five years or so to bring it into full scale operation. In view of this, the present lag in development is giving rise to anxiety about the future prospects of the Plan for Coal. This plan provided for a capital expenditure of £635,000,000 between 1950 and 1965 for renewals and development, but the latter is now progressing at only about three-quarters of the scheduled rate. One of the reasons given for this in the Report is a shortage of technical staff. Lack of workers would therefore appear to be the chief obstacle to development as well as production.

COAL FACE MECHANIZATION

Coal-face mechanization is still largely in the experimental stage and machines ranging from the Meco-Moore cutter-loader to the latest forms of continuous miners are being closely studied in operation. It is necessary to test the possibilities of every new machine for it is highly improbable that any one type will ever be evolved to cope with the wide variety of mining conditions in Great Britain. Complete mechanization of long-wall faces has hitherto been confined to the Meco-Moore machines of which over 70 are now at work. In 1951 they produced 5,250,000 tons or nearly 2.5 per cent of the total output of deep-mined coal. Over two-thirds of all the coal produced in 1951 was undercut and conveyed mechanically from the faces but over 97 per cent of it had to be loaded on to the face conveyors by hand. It is not to be expected that mechanization will show its effect on the overall output per man-shift to a very marked extent until a much larger proportion of the coal can be loaded mechanically on long-wall faces. Mechanical loading is not such a difficult problem in room and pillar workings and it is largely for this reason that the output per man-shift is so much higher in the U.S.A. than in this country.

Stowing machines of the pneumatic, belt and paddle types are undergoing tests at many collieries. At the end of 1951 there were 57 of these machines at work, mainly in Yorkshire and South Wales, and in the course of the year they stowed 1,500,000 cu. yd. of waste material in the goafs of long-wall workings.

A new type of conveyor, in which the driving tension is taken by two steel wire ropes attached to the edges of the belt was tested during the year at one colliery with results which are stated to be satisfactory. Investigations were also carried out by the Board's research staff into the causes of fires on trunk conveyors and these revealed that the duck foundation of the belt is more prone to burn than the rubber covering. The risk can therefore be reduced by fireproofing the duck. The tests also showed that a plastic material known as poly-vinyl-chloride provides a better fire-resisting covering than vulcanized rubber. A rather unexpected result was the discovery that the risk of fire arising from excessive friction in an idler roller is greatly reduced if the roller is made to lock when it gets hot. This conclusion, however, remains to be tested under working conditions in the mine.

The prevailing shortage of iron and steel has led to interesting developments in the construction of new shafts. A new type of lining is to be used in two of the new shafts where they pass through water-bearing strata, as an alternative to cast-iron tubbing. This consists of a waterproof layer of plastic material embedded in the concrete lining behind a wall of pre-formed concrete blocks.

Further progress was made in the provision of more coal-cleaning facilities on the surface. During the year 17 new washeries and extensions and 16 new froth-flotation plants were completed. The Board find that the conventional froth-flotation plant is expensive both to build and to run and a new and cheaper method of cleaning certain kinds of fine coals has been developed in Lancashire and its use was extended during the year to South Wales.

THE YEAR IN EACH COALFIELD

The returns from the coalfields for 1951 are summarized in Table 4. An increase in output since 1950 was recorded in each of the nine Divisions but only in three of them, namely the East Midlands, West Midlands and North Eastern Divisions a profit was made. From the financial standpoint these three Divisions are carrying the whole of the burden at present. They comprise the more recently developed areas in Yorkshire and the Midlands. In the older parts of the South Western, Scottish and Durham Divisions the more easily worked seams are nearly exhausted and the working conditions in some areas within these Divisions are exceptionally difficult. A new field is, however, being opened up in East Fife in the Scottish Division and there are large reserves of coal of high rank still untouched in the more westerly parts of the South Wales coalfield, where the anthracite areas in particular are destined to become important sources of coal for export.

Table 4

Division	No. of Mines Jan. 1	Output in Tons† (000,000)		Percent Increase	O.M.S.	Cost per ton	Profit or Loss per ton
	1951*	1950	1951		1951	s. d.	s. d.
1. East Midlands..	91	40.1	43.1	7.6	1.78	38 7	+8 6
2. North Eastern...	115	42.6	44.5	4.5	1.33	45 8	+4 6
3. North Western..	71	14.7	15.3	4.2	1.05	54 9	−0 3
4. South Eastern...	4	1.7	1.8	3.1	1.21	56 9	−0 3
5. Durham	125	26.5	27.3	2.9	1.01	55 10	−2 9
6. West Midlands.	59	17.6	18.0	2.2	1.34	45 10	+4 6
7. South Western..	117	24.3	24.8	1.8	0.91	60 7	−2 11
8. Northern	70	13.3	13.5	1.5	1.09	54 0	−2 7
9. Scottish	189	23.3	23.6	1.3	1.11	51 5	−0 6

*Not including small mines worked privately under licence.
†Including output from small lincensed mines.

*Report of the Technical Advisory Committee, Ministry of Fuel and Power, 1945.

Research on Conveyor Fires

The considerable loss of life and material by fires underground makes the fire hazard one which demands speedy investigation. The following article contains heartening reports of activities to determine the causes of conveyor fires and the possible counter measures to be adopted against them.

Reports from the Safety and Insurance Branches of the National Coal Board showed that during the period 1940 to 1950 faults on underground conveyor systems caused 75 fires or an average of about seven per year. Apart from the danger to human life, underground fires are responsible for loss and destruction which Britain can ill afford: the cost of the Creswell disaster alone being estimated at over £200,000. In its research programme the National Coal Board therefore accords a very high priority to the development of efficient methods of eliminating the fire hazards which arise from the use of belt conveyors in mines. Following the Creswell tragedy, an investigation covering a very wide field was started at the Board's Central Research Establishment at Stoke Orchard, Cheltenham, by a research team led by J. T. Barclay and directed by Dr. J. Bronowski. By reproducing actual fault conditions underground in the laboratory the investigators were able to determine the precise causes of fires. Based on the information thus obtained, they have made recommendations for both short-term and long-term measures to reduce the hazards arising from the use of belt conveyors in mines.*

Apart from ancillary electrical gear, the only inflammable features of belt conveyor systems are the belting itself and the oils and greases used for lubrication, but there is also the possibility that conveyors might ignite other inflammable materials, such as coal dust or timber, situated in their vicinity.

ORIGIN AND CAUSES

The first step was to determine the origin and causes of conveyor fires. Analysis of the 75 underground conveyor fires reported during the preceding ten years showed that 22 fires originated at the driving drums, 23 at rollers and idlers, 23 at other points of the conveyor systems (such as tension ends, motors, etc.), and seven were of unknown or uncertain origin. Experiments were carried out to determine all possible fire hazards at each point, and it was found that fires could be divided into three clearly defined classes according to their manner of generation. Into the first category come fires generated in the belt, which are caused by friction. Fires generated in other parts of the system constitute the second category and are caused mainly through rollers or idlers over-heating and setting fire to coal dust and other inflammable materials in the vicinity. Lastly come fires originating outside the conveyor system, which are extremely rare. To ignite a moving belt an external fire has to be so large and fierce that it can scarcely be regarded as a conveyor hazard.

Having found from statistical analysis that friction was the main cause of conveyor fires, the team began a series of experiments to discover how it can take place in conveyor systems and how the heat generated may set fire to the belt or to coal dust. One series of experiments was planned to examine the conditions which arise when a driving drum rotates against a stalled belt. In this case the heat is developed by friction between the rubber-covering of the belt, and the metal surface of the drum. In the early stages the rubber cover melts and the cotton fabric is exposed. A sudden rise of temperature occurs and strips of cotton duck are forced off the drum and extruded on to the bottom belt. The cotton soon begins to glow and eventually bursts into flames, setting the whole belt alight. The rubber on the remainder of the belt helps to spread the fire, but the experiments have shown clearly that rubber itself does not catch fire from the heat generated by friction, but from the cotton duck. It follows that if the cotton base could be fire-proofed the development of fire within the belt could be prevented. This conclusion was substantiated when a length of belting in which the cotton base had been fire-proofed, was subjected to the same friction drum test.

APPLICATIONS OF FIREPROOFING

Tests showed that cotton duck could be fireproofed effectively and cheaply by impregnation with suitable chemical agents. Two agents tested proved capable of rendering the duck flame-proof and glow-proof under the most severe conditions without causing an excessive reduction in tensile strength. The investigators do not claim, however, that their list of tested fire-proofing agents is exhaustive and it is probable that other satisfactory types are available. Tests were also carried out on a solid weave in which the cotton had been treated with P.V.C. during the process of weaving. This method of treatment appears to have distinct possibilities, especially if applied to the cotton duck on a ply type of belt with P.V.C. layers between the plies.

Though cotton is likely to remain the chief material used in the manufacture of belt fabrics, the inflammabilities of other materials were also investigated. Attempts to produce a belt with fireproof rayon duck have so far been unsuccessful. Fortisan treated with Resorcinol para-formaldehyde resin ignites fairly easily under friction. Samples treated with Resorcinol para-formaldehyde and Faspos were very weak in tensile strength. Forisan fabric treated with urea-phosphoric acid is completely non-inflammable, but it has not yet proved possible to make a belt from material treated in this way. There is a possibility, however, that a continuous filament rayon might be developed with such a low co-efficient of friction that, even in a standard belt, the rise in temperature when "stalled" might be insufficient to cause an ignition. Being made from continuous filament Tenasco shows a long delay in reaching a high temperature and might be satisfactory in a belt which is otherwise non-inflammable.

The investigators have shown that fires generated in the belt can be prevented by fireproofing the duck, but as an additional precaution they recommend the installation of automatic thermal controls which will cut off the power and stop the conveyor when overheating occurs on the driving unit. Control units suitable for this purpose are already available, but an improved type is being designed at the C.R.E. If desired, the control device can also be made to operate an automatic fire alarm and extinguisher.

A LONG TERM POLICY

As a long-term policy the manufacture of completely non-inflammable belting is recommended. By the use of a suitable chemical agent the cotton can be rendered not only proof against frictional ignitions, but also non-inflammable in the presence of an external fire. The problem then is to find a substitute for the rubber, and

for this purpose, both Neoprene and P.V.C. have been investigated. The latter material is preferred, for the following reasons: Its adhesion to cotton is better than that of Neoprene, it melts and impregnates the cotton when heated, it can be used to treat and thus fireproof the cotton fabric as well as providing fireproof covers, and it is already manufactured in Britain. Its resistance to surface wear is also excellent. A ply type belt made with cotton duck treated with P.V.C., or impregnated with a fireproofing agent and with P.V.C. outer covers and bonding between the plies, would be non-inflammable under all circumstances. Further tests may even show that the duck in a ply type belt need not be fireproofed if the rubber is replaced throughout by P.V.C.

NON-INFLAMMABLE BELT PRODUCTION

Manufacturers have been studying the production of completely non-inflammable belts and it is hoped that before long practical trials will be commenced. In their annual report for 1951, Barrow, Hepburn & Gale refer to experiments currently being conducted on a plastic fireproof belt.

A small experimental conveyor was set up at the C.R.E. for the purpose of studying the development of friction heat at rollers. Heat is generated by a roller which continues to rotate when some object is jammed against it or when the bearing breaks down. As the roller becomes hot the lubricating grease melts and leaks away along the spindle. With continued rise in temperature a stage may be reached when any coal dust beneath the roller begins to smoulder. If the coal dust is mixed with grease the whole mass may burst into flames. The investigators found that when a belt ran over a roller which was so jammed that it could not turn, most of the friction heat was carried away by the belt, the highest temperature reached by the roller being below that at which grease will run and far below that at which coal dust or coal and grease mixtures will ignite. This cause of fire can therefore be eliminated by using a type of roller which locks automatically and ceases to rotate when subjected to friction or to heat.

FURTHER INVESTIGATIONS

Three types of self-locking rollers have been developed at the C.R.E., and it is recommended that these should be progressively substituted for existing rollers as the latter become due for replacement. Since the bottom rollers are often completely concealed by the cover plates, warning devices are advisable to show when one has been locked, so that attention may be given to the trouble by removing the obstruction or replacing the faulty bearing. A visual indicator is being devised for this purpose. The bottom rollers should always be given careful and regular attention and be kept free from accumulations of dust or dirt.

A mixture of coal dust and oil (or grease) can be ignited more easily than coal dust alone. One dust having a spontaneous ignition temperature of 425°C. was ignited at 270°C. by roller friction when mixed with a standard lubricating oil. It is considered desirable, therefore, that lubricants for rollers should have high ignition temperatures.

* Fire Hazards on Belt Conveyors, by J. T. Barclay and deL. E. Edmonds (National Coal Board C.R.E. Report No. 87).

Ore Transport by Conveyor

Interesting details of ore transportation by means of conveyors is forwarded in this article, which appeared in *Optima*, Vol. 2: No. 2: June, 1952, a quarterly review published by the Anglo American Corporation of South Africa.

On the diamond mines of De Beers Consolidated Mines, broken ore from working levels is tipped into vertical passes and gravitates to a main haulage, which encircles the pipe and is connected to a main hoisting shaft in country rock some 1,200 ft., or more, from the pipe. Past practice was to transport the ore on the main haulage by means of trucks, partly on an endless rope and partly by gravity-inclines; but when Jagersfontein mine was reopened after the war, it was decided to change to a system of conveyor belts.

ADVANTAGES AND DISADVANTAGES

The main conveyor at Jagersfontein is 42 in. wide and 1,120 ft. long; moving at a speed of 300 ft. per minute, it handles 700 tons per hour. The two feeder conveyors are 36 in. wide, each with a capacity of 350 tons per hour. Compared with an endless rope haulage system operating under similar conditions at Wesselton mine during 1951, the Jagersfontein conveyor system showed the following advantages:

(1) Saving in European labour (one instead of five);
(2) Saving in Native labour (25 instead of 103);
(3) Lower operating costs per ton-mile (5.9d. instead of 7.9d.—equivalent to a saving of £3,400 per annum for the duty at the Jagersfontein mine);
(4) More uniform and continuous delivery of ore to the hoisting shaft; and
(5) Less liability to delays due to truck derailment, etc.

The chief disadvantage of a conveyor system is that it permits of less flexibility in the layout of a haulage and ore-passes, particularly where a pipe is irregular in shape. The capital cost of equipment, but not necessarily the complete installation, is also rather higher than for an endless rope haulage. When the Jagersfontein conveyor system was installed in 1948, the capital cost of equipment, including belting, was £29,000; the cost of the trucks, track, rope and engine for an endless rope haulage was estimated at £24,800. The higher equipment cost was, however, more than offset by an estimated saving of £15,000 in development costs, owing to the smaller haulage dimensions and the reduced ancillary development required for the conveyor system. That the apparent high cost of belt replacement is really a minor item in the cost per ton-mile is shown by the fact that the existing main belt, which would cost £7,000 to replace, has handled over 4,000,000 tons, and is still in good condition.

PRACTICAL AND ECONOMIC BENEFITS

Following the results obtained underground, the endless rope haulages used for the disposal of tailings on surface were replaced by a conveyor system, with even better results. The European complement was reduced from seven to one, the Native complement from 88 to 12 and the cost per ton from 3.7d. to 1.4d. The capital cost of the installation will be saved in two years.

In view of these economies, the disposal of tailings from the central washing plant at Kimberley is also being converted from endless rope haulages to a system of conveyors, and all new main underground haulages for the Kimberley mines are being designed to use conveyors.

The Kinta River Deviation

The following article, reproduced by courtesy of *Tin And its Uses*, a periodical review published by the Tin Research Institute, tells that by the Kinta River Deviation plan, 1,240 acres having a metallic tin content of an estimated 20,000 tons will become available. The plan is particularly interesting as it is a joint enterprise between Government and the mining companies, and its initiative is heartening, as all prospecting in the area has naturally been stopped by bandit activity.

The scheme to make a new channel for the Kinta River is an example of the long range planning that is applied to mining problems in Malaya, both by the Government and by the tin miners.

The Kinta River meanders through an alluvial valley containing perhaps the richest deposits of tin in the world, where intensive mining has been going on since the earliest times. In order to prevent damage to the main drainage channel of the valley a wide reserve has had to be kept free from mining on each side of the river bed, although it has been appreciated that the rich deposits on either side of the river extend through these reserved areas and through the existing river bed itself. Accordingly, some twenty years ago a scheme was drafted whereby a number of tin mining companies might cut a new channel for the river and thus make available this hitherto prohibited area.

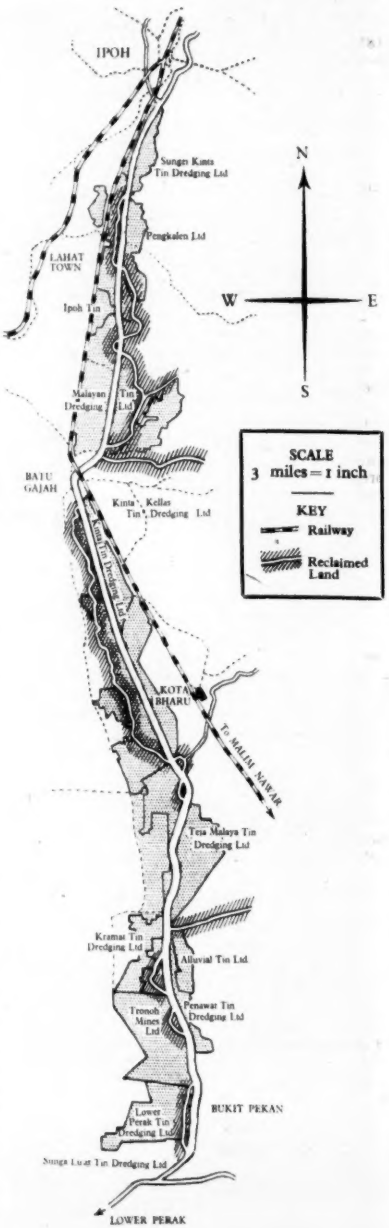
[The course to be taken by the deviation is shown in broad white on the map published alongside, and the considerable acreage of land thus reclaimed is portrayed by the shaded portions which fringe the original course of the river.—*Ed. The Mining Journal.*]

NATURAL HAZARDS

But to tamper with so vital a natural feature might endanger life and livelihood in this densely populated valley. The Kinta River drains some 500 sq. miles of a tropical region where the annual rainfall is upwards of 90 in. and where floods may suddenly swell the river to ten times its normal size.

The design of the new channel not only entailed shortening its course, but carrying it through cohesionless dredged ground and years of research were required by the Drainage and Irrigation Department to solve the technical difficulties. New roads and bridges were also required and large expenditures by many different mining companies and by public bodies were involved.

A draft agreement between the Perak Government and the tin miners was under consideration in 1941 when the Japanese invaded the country. The war made many changes inevitable but by 1950 a revised agreement was signed by the State of Perak and the following companies: Pengkalen Ltd., Malayan Tin Dredging Ltd., Southern Kinta Consolidated Ltd., Kinta Section, Southern Malayan Tin Dredging Ltd., Southern Kinta Consolidated, Penawat Section.



COMPANY ENDEAVOURS

Under this agreement each company undertakes to cut and complete a new channel, build weirs and flood-works as required, connect all tributaries, divert all roads, move and rebuild all bridges and do all this work to an integrated plan, and finally, to pay tribute to the Government on all the tin won from the new areas.

The size and value of this undertaking are impressive. The new channel will be 17 miles long and it will carry flood waters of over 10,000 cu. ft. per second. The land released for mining is a strip equal to the old river bed plus 44 yards on each side and amounts to an area of 1,240 acres, with a tin content estimated at 20,000 tons of metallic tin. The work is already under way and will be largely completed in the next five years and this new addition to the world's supply of tin will be worked as soon as it becomes available.

[The reports published by the companies concerned at the end of the financial year throw additional light on activities in the area. Pengkalen, Ltd. stated that dredging had commenced in the river reserve released by the deviation, and that the dredge later followed the trace of the old river bed. Construction was also under way. Southern Kinta Consolidated Ltd. notified that construction of the channel for the temporary deviation had been put in hand, and Malayan Tin Dredging Ltd. announced that within a few months 78.5 acres of reclaimed land would be available.—*Ed. The Mining Journal.*]

PIONEERS FOR A CENTURY

The death recently of Sir Samuel Osborn, president of Samuel Osborn & Co., ended the career of a man who, like his father before him, was one of the bulwarks of the British steel industry. At this time it is therefore particularly fitting that the excellent book *Pioneers for a Century* should lately have been published by the Company. In it the story is told of the development of Samuel Osborn & Co. over the last hundred years.

The Company was born on April 1, 1852, and its product in those days was files, which were manufactured by hand. Probably the only operations in their manufacture performed at Clyde Works—the first site of the Company and now known as Brookhill Works—were the cutting of the steel bars, together with the forging, hardening, warehousing and despatching. The cutting of the teeth and the grinding were done off the premises. In 1857, the Company began to manufacture its own steel and about this time the premises were expanded to cope with the increasing demand, as was the range of products.

Of particular interest is the attention Samuel Osborn paid to industrial safety and the welfare of employees. This has been maintained as a policy of the Company since the days of inception, and was already well established in 1871 when the firm assumed its present name, and partners as well as a separate manager were included on the roll.

In 1862 the Hand and Heart trade mark was acquired and in 1868 the Clyde Steel & Iron Works was added, yet the great decision of Samuel Osborn's life was to come in 1870 when he decided to take over Mushet's processes and steels and to market them from Sheffield.

By the early years of the 1880's, R.M.S. was firmly established in America, and the Company was beginning to enjoy world-wide connections. A second generation had now arrived at partnership level, and the Company's progress was maintained when W. S. Butcher & Co.'s works were purchased for use exclusively in the manufacture of steel castings. The factory was named the Rutland Works.

Samuel Osborn, the founder, died on July 7, 1891, after having won the highest honours in the industrial and social spheres.

The Lower Yard land was purchased in 1896, was installed by 1900, and has been the main melting shop ever since, and during the next two years great developments took place in the Company. A new cooling process was discovered and the tungsten content of products was increased from 8 to 14 per cent. Under conditions of gradual change, the chromium content was increased, while the content of manganese was lowered. Changes in organization and in production practice continued, and in 1905 the firm became a limited liability company, while in 1906 manganese steel castings were developed and the "Titan" trade mark acquired for exclusive use with manganese steel.

In their expansion, companies often develop far beyond the wildest dreams of their originators. The next few years showed this inclination insofar as Samuel Osborn & Co., was concerned, for during this time Double Mushet High Speed Steel was introduced and further changes were made in the factory organization.

All manner of equipment was produced during the 1914-18 war and in July, 1920, the business was converted into a public limited liability company, and its shares were quoted on the Stock Exchange. Further steels were introduced in 1921 and in 1928 Osborn's SOBV cutting alloy was shown at the Engineering Exhibition at Olympia.

Still the growth continued. Other additions to plant and products were made in 1934 and 1935, and during the war years between 1939-1945 the Company had a representative on every Government technical supply committee connected with those war supplies which came within its scope.

To-day, the Company has world wide ramifications and its hundreds of employees include men of all colours and creeds. Yet the management have never forgotten that in April, 1874, after Samuel Osborn had been compelled to file a petition for liquidation, a deputation of Brookhill Works employees offered to accept a 5 per cent reduction in wages.

An excellent and well-illustrated book.

TECHNICAL BRIEFS

Aluminium Dipping Process

A dipping process for coating steel and other ferrous metals with aluminium to be known as Aldip, is announced by General Motors Research Laboratories, Detroit. The technique, developed over a six-year period, is announced as important for two reasons. First as a corrosion or rust resistant coating for ferrous metals, Aldip might in some uses replace zinc-coated metals; and second, when diffused by heat treatment, Aldip becomes a heat resistant material.

The General Motors research process is presented as a simple, practical, inexpensive method for producing an aluminium base alloy coating over ferrous metal of high quality; another major advantage is the coating of an entire part or component where a high degree of formability is required. Aldip can be a continuous process for coating sheet, wire or rod stock.

The company is already producing aluminium-coated fabricated steel manifolds and, in another pilot production plant, is using Aldip on heat exchangers for an auxiliary tank motor. On the latter the heat exchangers are run through an acid pickle and thoroughly cleaned. Next they dipped for approximately four minutes in a bath of pre-heating salt at temperatures ranging from 1,280 to 1,400° F. They are then transferred to an aluminium bath, covered by a layer of salt flux about half an inch deep, in which they remain 30 seconds to one minute. While still red hot, the exchangers are returned to the pre-heat salt bath and slowly raised. Inside and out they assume a silvery appearance as the Aldip skin cools. Airblasting removes the excess aluminium.

Core Analysis for Dolomite and Limestone

Dolomites and limestones are not homogeneous with regard to porosity and therefore the usual method of selecting a plug sample may lead to misleading results. L. C. Locke and J. E. Bliss have described a method in which the entire core is analysed instead of a small fraction (*World Oil*, 131, 204). The core is first of all cut up into suitable lengths of the order of 2 ft. Oil and water is extracted and the core dried. Next, a high vacuum is applied and when this is released fluid under a pressure of up to 1,000 lb. per sq. in. is allowed to enter the core. The amount entering for each increment of pressure is recorded against time and the permeabilities calculated. Permeabilities obtained in this way are not directional since fluid enters over the whole surface and they agree therefore very well with the known figures for wells.

The Production of Chlorine from Mine Water

Water obtained from the Emscher-Lippe and Hannibal mines contains between 11 per cent and 12 per cent of sodium chloride together with small amounts of other chlorides. G. Woltersdorf (*Ber. Ges. Kohlentech.*, 1950, 5, 473) has described how such a mine water may be used for the electrolytic production of chlorine, its advantage over the rock salt method being that there is a complete absence of sulphur. The water is first of all filtered and it is then concentrated by evaporation. Magnesium and the alkaline earths are precipitated by the addition of a mixture of caustic soda and sodium carbonate. This is followed by further evaporation when a solution suitable for the production of electrolytic chlorine is obtained.

Gas Turbine Locomotive

It is announced from Ottawa that the Canadian coal industry is to accelerate the development of a new type of gas turbine locomotive fired by powdered coal, according to representatives of the industry. Spokesmen said that experiments on the turbine have begun at the McGill University in Montreal. A pilot plant, based on the principles of the locomotives is expected to be completed in about five months. The industry hopes to have the co-operation of the railways in the development of a prototype running at about half the cost of a conventional Diesel locomotive.

Coal officials said that Switzerland had already produced a small model, while both the U.K. and the U.S. had allocated millions of dollars for research on the problem. In Canada, the Federal Government is contributing about $100,000. An advantage of the turbine is that it will operate on low-cost powdered coal and will run at extremely low temperatures far more efficiently than Diesel engines.

MACHINERY AND EQUIPMENT

New and Standard Denver Equipment

Forwarded as comprehensive equipments for the controlled removal of moisture from mineral concentrates, manufacturing, sewage, and food wastes, industrial and chemical products, and coal fines, Denver Standard Dryers have a welded supporting frame and shell. Products of the Denver Equipment Co. of Colorado, the dryers are constructed in the shell of any plate up to 2 in. thickness, a factor which is determined by the specific requirements of the task to be undertaken. The material used in construction may be rolled steel plate, which is a standard material, or aluminium, monel, stainless or stainless clad steel, or other metal. The final decision regarding the nature of the metal used in construction, however, is naturally dictated by the nature of the drying requirements to be met.

The driving mechanism is designed for the minimum of maintenance, with the driving gear and pinion machined for accurate alignment and facile operation. The pinion is reversible in order to reduce maintenance costs. Steel tyres and carrier rollers are manufactured of special grade steel, with ancillary features incorporated. The manufacturers point out that in many cases, controlled drying adjusts moisture content to minimize dust losses or to prevent the freezing of a product in transit.

Further Denver equipment of interest to the mining engineer is the firm's range of SRL rubber lined pumps. The manufacturers claim that the service life of pressure moulded rubber wearing parts averages 6 to 50 times the service of hard iron or alloy steel. The range grades from the 2 in. by 2 in. SRL pump which can accommodate 50 gallons of water per minute, and has 838 r.p.m. and 0.60 h.p. at a 20 ft. head, and 1,525 r.p.m. and 3.2 h.p. at an 80 ft. head; to the 10 in. by 8 in. SRL-C. This machine accommodates 2,000 gallons of water per minute, finally developing 855 r.p.m. and 71.6 h.p. at a 100 ft. head.

A further unit forwarded is the 10 in. by 20 in. Type H Denver Jaw Crusher, recently introduced. The machine is stated to offer greater size reduction and added capacity because of its forced feed operation. A factor which promotes long service and decreases wear is the anti-frictional roller bearings in the bumper and high quality bronze side bearings.

Reversible jaw and cheek plates are cast of 13-14 per cent manganese steel, and the bumper itself is of electric cast annealed steel. The jaws and cheek plates are reversible. The Denver Type H Jaw Crushers are built in sizes from 2½ in. by 3½ in. to the maximum size of the range the 10 in. by 20 in. The company's Type J Crushers are similar, but in these machines anti-friction bearings are used for both bumper and side bearings.

The Sub A Laboratory Flotation Machine and the New Laboratory Dryer are also presented.

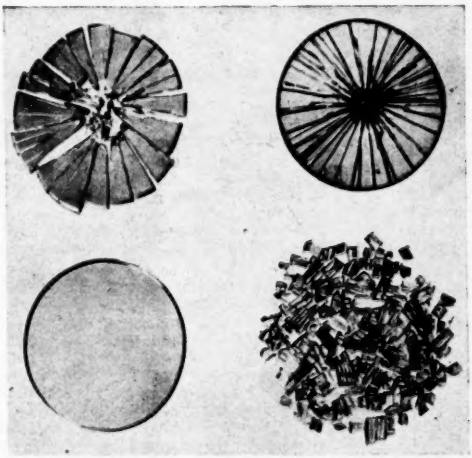
Prevention of Eye Accidents

In view of the risk of eye accidents during mining operations, the introduction of Armorglas toughened lenses for use in goggles and correction spectacles by Messrs. J. & R. Fleming Ltd. is of interest. Armorglas is prepared by specially heat-treating and cooling glass so that the resulting tensions produce a lens with tough surfaces, and which will withstand the impact of a heavy blow. Every piece of finished glass is tested before it leaves the factory by having a steel ball, ¾ in. diameter and weighing 54 grm., dropped on to it from a height of 54 in. Lenses tested to destruction in the factory are said to have proved to be able to withstand several such blows. One similar blow would, of course, damage laminated glass of similar thickness.

When Armorglas does break, it fractures into cubical pieces without sharp edges, which are unlikely to damage the eye seriously and in actual use the manufacturers claim that it has been found that the rim of a goggle or spectacle will usually hold the Armorglas in place after it is broken until the rim is loosened to permit the fitting of a new lens. The overall product embraces a wide range of spectacles and goggles which can be supplied with Armorglas lenses.

In the past it has been difficult to provide adequate protection for the man who needs to wear correction spectacles and whose work exposes him to the risk of eye injury from flying particles of stone or metal. Some goggles can be worn over spectacles but there is a natural reluctance to wear two articles. Armorglas Rx lenses are designed to overcome this difficulty as they combine in themselves the protective properties offered by Armorglas and the corrective properties of ordinary lenses as prescribed by optical practitioners. In view of their corrective properties, the lenses need to be prescribed and fitted by a qualified optical practitioner and cannot, therefore, be obtained direct from the manufacturers. They can be fitted to almost any type of spectacle frame normally worn and in addition, a special nickel frame of pleasing appearance and robust construction, has been specially designed for use with Armorglas Rx lenses when used industrially.

The manufacturers point out that B.S.S. tests require resistance to impact supplied by the drop of a ½ in. diameter steel ball weighing 16.3 grm. from 36 in. They add that each Amorglas Rx lens is tested for resistance to impact by the drop of a steel ball ¾ in. diameter and weight 44.8 grm. dropped on to it from a height of 54 in. These lenses are manufactured for use in industry generally, and have their adaptions in mining.



Top, left to right: Ordinary glass shattered by one blow from ¾ in. diam. ball, dropped from 50 in., and laminated glass after one drop of ¾ in. steel ball from 50 in. Bottom, left to right: Armorglas intact after 100 blows from ½ in. diam. steel ball dropped from heights of 50-72 in., and Armorglas broken, with pieces showing cubical formation

An important consideration for the mining engineer, however, is the realization that not only the lens of a goggle is of importance, but the housing of that lens in relation to the nature of work being undertaken. The use of Armorglas lenses as a protection for the eye of the mineworker, be he employed at an underground drill or at a sorting conveyor on surface, decree that the goggle worn should provide in design for the slanting fragment of rock that does not strike at the eye direct, and in addition should guard against the continual danger of dust irritation.

Holman Dryductor Rock Drills at St. John D'El Rey

The annual report of the St. John d'El Rey Mining Co. covering the year 1951 states that extensive operating tests were carried out with a Holman Dryductor Rock Drill which showed an appreciable increase in drilling speed as compared with the S.L. 200 model and that the adoption of this machine, with its unique dust collecting features, should considerably improve working conditions underground.

METALS, MINERALS AND ALLOYS

The U.S. steel strike still shows no signs of a settlement. Indeed, the news that a four-man committee of the steel-workers has been set up to work out a plan for meeting defence needs of steel cannot be held as very encouraging. When the wage negotiations collapsed, both sides agreed to allow sufficient defence steel to be produced. This committee is to fulfil that promise.

There is no indication of what action the U.S. Government will take. The Senate has adopted an amendment calling on Mr. Truman to invoke the Taft-Hartley Law which requires a no-strike injunction for 80 days. The House of Representatives has still to pass this amendment.

Meanwhile, steel stocks are falling. Ford Motor has issued a warning that it will start closing plants on June 26, unless the strike is ended.

The International Materials Conference has announced that new allocations have been agreed for copper, tungsten, molybdenum, nickel and cobalt. Details of these new allocations are not to hand as we go to press.

COPPER.—Production of crude copper in the U.S. during May rose to 93,024 tons, against 89,479 tons. The production of refined copper, however, fell from 98,402 tons to 97,593 tons. The Copper Institute estimated that stocks of refined copper in countries outside the U.S. are at the highest level since the statistics were first compiled in 1947. At 176,772 s.tons they have beaten the previous best of 175,000 s.tons at the end of December, 1948 by a useful margin.

The fixing of new ceiling prices for copper products in the States has been taken a stage further by the Office of Price Stabilisation which has now announced that fabricators may for a period of at any rate the next 60 days add 3.84c. per lb. of copper contained to the ceiling price of their products. It will be recalled that, as previously reported, fabricators are to be allowed to charge 80 per cent of the difference between the old domestic price of 24.50c. per lb. and the price actually paid for foreign copper which is currently running at about 36.5c. The overall figure of 3.84c. per lb. has been arrived at by averaging the amount of foreign produced copper expected to be used over the total amount of copper consumed. For the present, the ratio has been taken to be 40 per cent of foreign copper to 60 per cent domestic, a ratio which gives the average of 3.84c. per lb. for all copper consumed.

Starting July 1, N.P.A.'s copper allocations will be on this 40 per cent, 60 per cent basis, and consumers will be compelled to take up the 40 per cent of their allocation in foreign copper. Fabricators will be permitted to add 3.84c. per lb. to their prices irrespective of whether they take up their allocation of export copper and of whether they are able to buy foreign copper below the present Chilean price.

By developing its Merrill Island, Doe Lake, Province of Quebec, property, Campbell Chibougamau Mines of Montreal will be able to supply the U.S. with 32,000 s.tons of refined Canadian copper before the end of 1956. According to present plans, the annual peak production will be 18,600 s.tons. The U.S. Government has the option of buying any or all of the Merrill Island output at the market price of 24½c. per lb., whichever is the higher.

The *Diario Illustrado* of Santiago reports that Chile has sold another 3,200 tonnes of copper to the U.S.; the reported price is once again 35½c. per lb.

LEAD.—Reports from New York state that the lead market is showing signs of renewed activity. Though buying has not been what might be called heavy, the volume of business done has been steadily improving. Stocks of lead in the hands of consumers are stated to be low. This statement coincides with what would be expected, for buyers held off the market when price cuts were expected, and consumers have been content to wait to see whether they have yet seen the end of the cuts. There was no shortage of the metal which would compel them to rush into the market to buy as an insurance against future shortage.

The new price of lead has caused trouble for the Compania Minera de Guatemala, the largest lead mine in that country. Operations have been practically suspended. Transport difficulties are given as a cause for the contraction in output, but this would seem to be a secondary consideration. While the price was high, the difficulties could be overcome. The company is stated to be a major exporter of both lead and zinc to the U.S. from Central America.

Statistics released by the Department of Commerce indicate that imports of lead into the U.S. rose in April, when 31,192 tons of refined lead were taken into the country, against 28,310 tons in March. Imports of lead in ore matte, however, dropped from 10,233 tons to 9,593. The improvement in total supplies of lead is presumably in anticipation of the restoration of the U.S. import duty. The increase in the total amount of refined lead imported conceals the conflicting fluctuations in the supply from different sources. Imports from Mexico in May at 21,057 tons were almost 50 per cent more than in the previous month, and shipments from Yugoslavia at 6,752 tons were almost doubled. On the other side of the account, imports from Canada at 2,054 tons were under a third of the March figure.

TIN.—Early in 1951, market stocks of tin fell to dangerously low levels and the London Metal Exchange agreed to an embargo on the export of English tin and placed a restraint on the export of Straits tin. As a result of this action stocks of tin rose. At the end of April stocks in the hands of consumers, but excluding smelter carry over, were 2,460 tons. As stocks have improved, the Metal Exchange has decided that members should be free from June 14 to export either English or Straits tin. The recent decision of the smelters to re-enter the export market has also been given as a reason for the change.

According to the latest reports, the strike of workers at the Texas City smelter is continuing, and little effort is apparently being made to negotiate for a settlement.

The Malayan Trade Union Council meeting at Kuala Lumpur is to demand the nationalization of the tin and rubber industries. With a careless regard for consistency, the resolution is alarmed at the indiscriminate exploitation of the mineral wealth of the country and, fearing widespread unemployment, calls on the Government to provide alternative employment.

ZINC.—Dealings in zinc futures in New York will be resumed on Monday next, June 23. Dealings will be permitted for any month from September next to May, 1953.

ALUMINIUM.—The output of primary aluminium in the U.S. during March, 77,069 s.tons, was slightly above the February level of 72,330 s.tons. The Bureau of Mines states that stocks at the end of the month remained.

Reduced imports of aluminium into the U.S. from Canada were responsible for the decline of 54 per cent from the previous month.

Yet another source of supply for aluminium will be added when a new factory is erected at Inota, Hungary, about sixty miles south-west of Budapest. The factory will be supplied with power from the generating plant now being built; the bauxite will come from deposits nearby.

ANTIMONY.—The price of antimony in the U.K. has taken another beating. Within the space of two and a half months, the official price has been cut four times, and the cuts have been large. On the latest occasion, the reduction is £45 per ton for the metal and £30 for oxide. The price of 99 per cent regulus is now £225 per ton, as compared with a peak of £390 a year ago and £160 when the fighting broke out in Korea roughly two years ago.

ASBESTOS.—*Asbestos* of Philadelphia can find no indication of a slackening in demand for asbestos fibres in grades from 3 to 5. Releases of groups 6 and 7 have picked up slightly in the last month or two, but, unlike the other grades mentioned, the supply of these groups is reckoned to be slightly in excess of demand. The commercial grades of asbestos textiles are easier to obtain than the purer grades, where the waiting period is between 3 to 4 months.

MICA.—The Australian Government has announced that it is investigating ways of stimulating the production of mica in the Northern Territory. At present, apart from small quantities being sent to New Zealand, the export of mica is prohibited. If production can be increased sufficiently, there would be a surplus available for export, thus helping the overseas revenue of the Dominion.

QUICKSILVER.—The American domestic price of quicksilver has suffered yet another reduction in the long series this year. The price of $195-198 per flask now quoted compares with $195-200.

TUNGSTEN.—The American domestic production of tungsten concentrates in the first quarter of the year was 1,585 s.tons (60 per cent). This is slightly above the quarterly average for 1952 of 1,542 tons. Consumption of tungsten in the U.S., according to the Bureau of Mines, rose from 1,215 s.tons in the fourth quarter of 1951 to 1,288 s.tons. Stocks at the end of March were much lower than at the end of the previous quarter; they were 1,457 s.tons against 2,000 s.tons. The largest amount of tungsten imported into the U.S. came from Portugal 598,442 lb. out of a total of 3,106,950.

URANIUM.—The Canadian Government has offered an additional incentive for the production of more uranium. Instead of guaranteeing the market until March, 1960, it is now extending the period to March, 1962.

The Government of Israel has given more details of its agreement with a Belgian company to develop copper deposits in the Negev. The company is the Société Belgo-Continentale des Minerals et Metaux, and the agreement is a contract and not, as reported earlier, a concession. The plant and mines will be owned by the Government, which will invest $1,500,000 in equipment. The plant is expected to produce over 10 tons of metallic copper day at the end of a period of between twelve and eighteen months.

The uranium field at Radium Hill, South Australia, is expected to yield $5,000,000 in the first year of working. The Purchasing Agency of the Atomic Commission is expected to acquire most of the ore produced in the initial period; this agency is acting on behalf of the U.K. and the U.S.

GOLD.—The output of gold from the Transvaal and the Orange Free State in May amounted to 1,012,817 f.oz. as compared with 963,436 f.oz. in April. The May total was made up as follows: Rand 980,802 f.oz. (933,626); Transvaal outside districts 13,251 f.oz. (12,519) and Orange Free State 18,764 f.oz. (17,291).

PLATINUM.—Although only a little over a month is left before the U.S. ceiling price of platinum is reduced to $93 again, demand for the metal at the temporary ceiling price of $105 is reported to be firm. When the maximum price was raised nearly two months ago, the trade expected few deals to be made at the new permitted high level. The present state of demand could make the enforcement of the old price of $93 very difficult.

The London Metal Market

(From Our Metal Exchange Correspondent)

Trading in tin on the London Metal Exchange has continued at a low ebb during the week. Prices for both cash and forward metal advanced slightly prior to the week-end, but have since fallen back a little below the levels ruling before the rally. The backwardation has narrowed slightly to about £5 per ton in spite of a decline of 120 tons in the warehouse stocks for the week ended June 14, 1952.

A meeting of members of the London Metal Exchange on the 12th inst. decided to lift the ban on the export of English tin and to withdraw the request for restraint in exports of Straits tin and the United Kingdom as from tJuly 14.

The Ministry of Materials has announced an advance of £50 per ton in their selling price to £281 per ton for electrolytic and sales beyond the end of June, which were suspended on the 7th inst., are being resumed. Lead and zinc have remained dull with very little demand apparent.

On Thursday the official close on the tin market was: Settlement Price £968 10s., Cash Buyers £968 10s., Sellers £969; Three months' Buyers £966, Sellers £966 10s. In the afternoon the market was slightly easier. Turnover for the day was 40 tons. Approximate turnover for the week was 210 tons.

The Eastern price on Thursday morning was equivalent to £980 15s. per ton, c.i.f. Europe.

JUNE 12 PRICES

COPPER

Electrolytic	£281 o o d/d

TIN

(See our London Metal Exchange report for Thursday's prices)

LEAD

Soft foreign, duty paid	£129 o o d/d
Soft empire	£129 o o d/d
English lead	£130 10 o nom.

ZINC

G.O.B. spelter, foreign, duty paid ...	£138 o o d/d
G.O.B. spelter, domestic...	£138 o o d/d
Electrolytic and refined zinc	£142 o o d/d

ANTIMONY

English (99%) delivered, 10 cwt. and over	£225 per ton
Crude (70%)	£210 per ton
Ore (60% basis)	25s.—27/6 nom. per unit, c.i.f.

NICKEL

99.5% (home trade)	£454 per ton

OTHER METALS

Aluminium, £154 per ton.	Palladium, £8 10s. oz.
Bismuth, 19s. lb.	Platinum (scrap), £33.
Cadmium, 16s. lb.	Platinum, £27/33 5s. nom.
Chromium, 6s. 5d. lb.	Rhodium, £45 oz.
Cobalt, 20s. lb.	Ruthenium, £30 oz.
Gold, 248s. f.oz.	Quicksilver, £73 ex-warehouse.
Iridium, £65 oz. nom.	Selenium, 25s. nom. per lb.
Magnesium, 2s. 10½d. lb.	Silver (bar), 72½d. f.oz. spot and forward.
Osmiridium, £35 oz. nom.	
Osmium, £70 oz. nom.	Tellurium, 18s./19s. lb.

ORES, ALLOYS, ETC.

Bismuth	50% 9s. lb. c.i.f.
	40% 8s. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (lumpy)	£13 per ton c.i.f.
,, ,, (concentrates)	£13 per ton c.i.f.
,, ,, Refractory	£12 12s. per ton c.i.f.
Baluchistan Metallurgical ...	£14 16s. per ton c.i.f.
Magnesite, ground calcined ...	£26 - £27 d/d
Magnesite, Raw	£10 - £11 d/d
Molybdenite (85% basis) ...	104s. 9d. per unit c.i.f.
Wolfram (65%), U.K. ...	445s. nom. c.i.f.
Tungsten Metal Powder (for steel manufacture) ...	34s. 8d. nom. per lb. (home)
Ferro-tungsten	31s. 8d. nom. per lb. (home)
Carbide, 4-cwt. lots	£30 3s. 9d. d/d per ton
Ferro-manganese, home ...	£43 15s. 2d. per ton
Brass Wire	2s. 9⅛d. per lb. basis.
Brass Tubes, solid drawn ...	2s. 3⅜d. per lb. basis.

British Guiana Gold and Diamond Output, 1951.—The Commissioner of Lands and Mines reports the output of gold for 1951 as 14,688¼ oz. compared with 13,739¼ oz. in 1950. Diamond production was 43,260¼ ct. compared with 37,480½ ct. in 1950. A rich discovery has been rumoured recently on the British Guiana-Brazilian border and police are said to have been sent to maintain order.

Gold Output in the French Colonies.—Production in French Equatorial Africa, as reported by the Colonial Chamber of Mines last year, was 1,456 kilos; from French West Africa 251 kilos; from French Guiana, 375 kilos; and from the Cameroons, 22 kilos, giving a total of 2,244 as compared with 2,984 kilos in 1950 and 3,451 kilos in 1949.

French Coal Production in 1951.—French coal production reached the record figure of 55,000,000 tons in 1951, against 52,500,000 tons in 1950. Production per miner per day was 1,307 kilogrammes against 1,201 kilogrammes in 1950.

Coal imports in 1951 totalled 13,582,695 tons, compared with 8,871,748 tons in 1950, and 22,808,000 tons in 1938. Germany was the main supplier with 6,118,711 tons (5,571,070 tons in 1950 and 7,174,000 tons in 1938). Shipments from the United States were: 4,490,988 tons (48,053 tons, tons Nil); and Poland supplied 969,235 tons (669,919 tons, 1,577,000). This country exported only 592,734 tons as compare dwith 1,247,525 tons in 1950, and 6,481,000 tons in 1938.

Holland's 1951 Coal Production.—Total production of Holland's coal mines during 1951 has been announced as 12,420,000 tonnes (12,247,365 tonnes in 1950).

Austrian Coal Production, 1951.—Austria's coal output during 1951 amounted to 5,184,379 tonnes, mostly brown coal, an increase of about 700,000 tonnes over 1950.

THE MINING MARKETS

Although at times it appeared as if the Funds might develop firmer tendencies, based on the improvement in sterling, this never materialized and with talks about a further possible rise in the Bank Rate persisting, prices were marked down all round. In some cases to new record low levels. These depressing conditions were prevalent in most parts of the House but mining shares, particularly Orange Free State developers, enjoyed an active market.

The recent firmness in Kaffirs continued throughout the week. Selected Paris buying was again a feature and when demand from this source weakened local support together with Cape enquiry was strong enough to raise several issues to higher levels.

Changes in the O.F.S. list reflected strong support. Free State Geduld were in demand following the announcement that the No. 2 shaft had intersected the Basal Reef between 5,399 ft. and 5,425 ft. below the collar. The Reef was sampled around the perimeter of the shaft and gave the high average value of 46.32 dwt. over a channel width of 13.71 in. equivalent to 635 in.-dwt. This result was particularly well received as the shaft is not located in what is thought to be the richest part of the property. St. Helena enjoyed small but consistent advances while the Freddies group issues and the two Presidents also improved their positions.

Far West Rand issues inclined to be mixed but the Strathmore group went ahead, Stilfontein, New Pioneer and E. R. Extensions all hardening. Doornfontein, on the reported resumption of development work, were also better.

With the exception of Rand Mines most finance issues did well, Paris came in for Anglo American while the new financing arrangements announced by African and European helped to raise the shares to higher levels.

In diamonds, De Beers Deferred enjoyed steady support from Paris. But platinums with the exception of Pots Plats and Waterval tended to be dull.

The copper market was active, stimulated by the increase in the U.K. copper price and although a certain amount of selling developed at the upper levels, the end of the week saw most of the issues in this section higher. Nchanga was a good counter. Rho-Kats firmed up and there was demand from both local sources and from the Cape for Messina. Enquiries were made for the "Tanks" issues, the Preference and the Ordinary shares showing improvement. This movement was thought to be due largely to the fresh rumours that the Benguela Railway would soon be taken over. Elsewhere in base metals Consolidated Murchison was an uneasy market following the cut in the antimony price and the anticipations of an appreciaoble reduction in the dividend distribution. The sharp cut in the half-yearly dividend from 24s. per share in December last to only 3s. 6d. was not made known until after market hours.

West African and Australian golds were steady, the numerous gains occurring in the former section including Ashanti, Bibiani, G.C. Selection Trust and Ariston, while in the latter section, Great Boulder Prop., Lake View and Star, North Kalgurli and Western Mining all improved 6d. on the week.

Tins began the week quiet, but brightened later on small investment demands. Sungei Kinta announced higher net profits of £198,458 compared with £70,757 in 1950 and a final dividend of 30 per cent making 40 per cent for the year. 20 per cent was paid in 1950. Bisichi Tin also reported higher net profits, £88,307 against £79,552, and a greater total distribution 7½d. against 6d. in 1950. On the other hand, Gold & Base Metals show reduced profits after tax but is maintaining the dividend at 15 per cent.

In a rather thin oil market, Ultramars provided the most interest and after enduring some sharp fluctuations recovered well to 28s. after being down to 26s. 6d. Steady investment buying of Shells made them a firm spot, and good support from American and the continental sources helped Royal Dutch remain a good market. Elsewhere Anglo-Iranians eased as did Burmahs, Trinidad Leaseholds and Canadian Eagle.

	Price June 18	+ or − on week
FINANCE		
African & European	2⅜	+⅛
Anglo American Corpn.	6½	+½
Anglo-French	18/9	.....
Anglo Transvaal Consol.	28/9"	.....
Central Mining (£1 shrs.)	35/7½	+1/10½
Consolidated Goldfields	45/7½	+3/9
Consol. Mines Selection	24/4½	+7½d
East Rand Consols	2/10½	+3d
General Mining	4½	.....
H.E. Prop.	31/10½	−7½d
Henderson's Transvaal	11/-	+6d
Johnnies	2⅝	+⅛
Rand Mines	4½XD	−¼
Rand Selection	36/10½	+1/10½
Strathmore Consol.	28/6	.....
Union Corporation	7⅜	+⅛
Vereniging Estates	3⅝XD	−⅛
Writs	30/-	+7½d
West Wits	41/9XD	−1½d
RAND GOLD		
Blyvoors	41/3XD	+1/6
Brakpan	17/3	+3d
City Deep	28/9XD	+7½d
Consol. Main Reef	30/-XD	−7½d
Crown	46/10XD	−7½d
Daggas	3⅜	+⅛
Doornfontein	24/-	+1/9
Durban Deep	3XD	−⅛
E. Daggas	19/4½	+7½d
E. Geduld ... (4/- units)	41/3XD	+1/3
E. Rand Props	3⅜XD	+⅛
Geduld	6⅛XD	−¼
Govt. Areas	11/-	.....
Grootvlei	30/9XD	.....
Libanon	12/9XD	−3d
Luipaards Vlei	17/1½XD	−4½d
Marievale	21/6XD	.....
Modderfontein East	23/9XD	−1/3
New Kleinfontein	28/3XD	−6d
New Pioneer	13/6	+1/9
Randfontein	18/-	+4½d
Robinson Deep	10/6	.....
Rose Deep	23/9XD	−1/3
Simmer & Jack	5/4½XD	.....
S.A. Lands	40/-	+7½d
Springs	7/3	+1½d
Stilfontein	24/9	+1/6
Sub Nigel	2⅛XD	.....
Van Dyk	12/6	.....
Ventersrost	19/-XD	−9d
Vlakfontein	16/6XD	−3d
Vogelstruisbult	28/9XD	.....
West Driefontein	5⅛	+⅛
W. Rand Consolidated	48/9XD	−7½d
Western Reefs	41/3	+7½d
O.F.S.		
Freddies	7/9	+9d
Freddies N.	6/10½	+10½d
Freddies S.	8/-	+1/-
F.S. Geduld	2⅛	+⅛
Geoffries	17/-	+9d
Harmony	19/-	+9d
Loraine	6/3	+6d
Lydenburg Estates	10/6	+9d
Merriespruit	4/-	+4½d
Middle Wits	15/-	+9d
Ofsits	39/4½	+7½d
President Brand	20/-	+1/6
President Steyn	18/4½	−1½d
St. Helena	17/3	+1/-
U.F.S.C. & G.	6/6	.....
Virginia Ord.	11/-	+1/-
Welkom	28/1½	.....
Western Holdings	3⅛	+⅛
WEST AFRICAN GOLD		
Amalgamated Banket	1/4½	+1½d
Ariston	5/6	+3d
Ashanti	17/-	+1/3
Bibiani	6/4½	+7½d
Bremang	2/7½	+1½d
G.C. Main Reef	3/7½	+6d
G.C. Selection Trust	6/9	+9d
Lyndhurst Deep	2/1½	+1½d
Marlu	1/3	.....
Taquah & Aboso	3/7½	−1½d
AUSTRALIAN GOLD		
Boulder Perseverance	2/4½	+1½d
Gold Mines of Kalgoorlie	9/4½	+1½d
Great Boulder Prop.	5/6	+6d
Lake View and Star	15/9	+6d
Mount Morgan	17/-	−1/6
North Kalgurli	13/-	+6d
Sons of Gwalia	8/6	.....
South Kalgurli	8/9	+7½d
Western Mining	7/9	+6d
MISCELLANEOUS GOLD		
Cam and Motor	45/7½	+1/10½
Champion Reef	6/4½	−4½d
Falcon Mines	7/10½	.....
Globe & Phoenix	24/6	+6d
G.F. Rhodesian	6/7½	+7½d
London & Rhodesian	4/6	+3d
Motapa	2/-	+3d
Mysore	3/4½	−1½d
Nundydroog	5/6	.....
Ooregum	2/10½	.....
Oroville	10/9	.....
MISCELLANEOUS GOLD (contd.)		
St. John d'El Rey	22/6XD	−1/3
Zams	36/3	+3d
DIAMONDS & PLATINUM		
Anglo American Inv.	4⅜	.....
Casts	27/-	+3d
Cons. Diam. of S.W.A.	3½	+½
De Beers Defd. Bearer	64/9	+3/9
De Beers Pfd. Bearer	13½XD	.....
Pots Platinum	9/10½	+1½
Watervaal	16/3	+1/10½
COPPER		
Chartered	60/9	+1/3
Esperanza	3/9	.....
Indian Copper	3/9	.....
Mesaina	4⅛	+⅛
Nchanga	7⅛XD	−⅛
Rhod. Anglo-American	58/-	−1/-
Rhod. Katanga	11/-	+1/-
Rhodesian Selection	17/4½	+9d
Rhokana	21½	−⅛
Rio Tinto	21½	−½
Roan Antelope	13/6	.....
Selection Trust	38/1½XD	.....
Tanks	58/-XD	−3d
Tharsis Sulphur Br.	39/-	−1/-
TIN (Eastern)		
Ayer Hitam	22/9XD	−3d
Bangrin	8/1½	.....
Gopeng	10/9	+3d
Hongkong	6/7½	+4½d
Ipoh	20/7½	+7½d
Kamunting	10/6	−3d
Kepong Dredging	6/7½XD	−4½d
Kinta Tin Mines	14/1½XD	−1½d
Malayan Dredging	23/9	+1/6
Pahang	14/6	+1/-
Pengkalen	8/9	+9d
Petaling	14/4½	+6d
Rambutan	11/10½	.....
Siamese Tin	21/-	−9d
Southern Kinta	13/9	+1½d
S. Malayan	23/4½	+10½d
S. Tronoh	14/9XD	−6d
Sungei Kinta	17/6	.....
Tekka Taiping	8/3	+9d
Tronoh	21/9XD	+3d
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	9/3	.....
Beralt Tin	21/-	+1/-
Bisichi	4/-	.....
British Tin Inv.	15/1½	.....
Ex-Lands Nigeria	4/6	.....
TIN (Nigerian and Miscellaneous) contd.		
Geevor Tin	11/4½	+1½d
Gold & Base Metal	3/6	.....
Jantar Nigeria	6/6	.....
Jos Tin Area	10/3	−3d
Kaduna Prospectors	3/9XD	.....
Kaduna Syndicate	5/-XD	+3d
London Tin	5/-	+1½d
United Tin	2/1½	.....
SILVER, LEAD, ZINC		
Broken Hill South	45/3	+2/9
Burma Corporation	1/6	.....
Consol. Zinc	25/9	+1/4½
Lake George	15/3	+1/-
Mount Isa	36/3	+1/9
New Broken Hill	25/9	+2/6
North Broken Hill	55/9	+2/7½
Rhodesian Broken Hill	16/9	+1/7½
San Francisco Mines	30/3	.....
Uruwira	5/3	+1½d
MISCELLANEOUS BASE METALS & COALS		
Amal. Collieries of S.A.	41/3XD	.....
Associated Manganese	43/6	−6d
Cape Asbestos	16/1½	−4½d
C.P. Manganese	44/3	+3d
Consol. Murchison	37/6	−1/6
Mashaba	8d	−½d
Natal Navigation	3⅜XD	−⅛
Rhod. Monteleo	12/3	+1/9
Turner & Newall	79/6	−6d
Wankie	16/3	+3d
Witbank Colliery	2¼	−⅛
CANADIAN MINES		
Dome	$35	.....
Hollinger	$26½	+$½
Hudson Bay Mining	$100	+$1
International Nickel	$80½	+$½
Mining Corpn. of Canada	£5½	.....
Noranda	$142	.....
Quemont	£7½	.....
Yukon	4/4½	−3d
OIL		
Anglo-Iranian	5⅛XD	−½
Apex	38/9XD	−1/3
Attock	20/7½	.....
Burmah	58/9	−1/10½
Canadian Eagle	30/7½	−7½d
Mexican Eagle	21/9	−4½d
Shell	4⅜	+⅛
Trinidad Leasehold	28/6	−3d
T.P.D.	24/4½	−7½d
Ultramar	28/-	−1/-

COMPANY NEWS AND VIEWS

Investment Trusts Not to Pay E.P.L. Twice

An important new clause exempting franked investment income of investment companies from E.P.L. was approved in the House of Commons during the week. Referring to the case of income of investment trusts, Mr. Boyd Carpenter, Financial Secretary to the Treasury, explained that the Excess Profits Levy would not be paid twice as the new clause exempted that part of the trusts' income on which E.P.L. had already been paid. Debenture interest and income from overseas companies, however, did not enjoy this exemption nor did the concession apply to a holding company for a group where the other members of the group were trading companies.

Subsequently, Mr. Carpenter said that the Chancellor was well aware of the difficulties arising from confining exemption for franked investment income from the Excess Profits Levy to investment companies, and he promised that if anomalies arose he would consider including in next year's Finance Bill amending legislation, perhaps with retrospective effect.

Siamese & Bangrin Assess Lead-Zinc Deposits in Scotland

Siamese Tin Syndicate and Bangrin Tin Dredging in a circular sent to shareholders have announced the convening of extraordinary general meetings in London on July 4 for the purpose of obtaining shareholders' sanction to a resolution which, if approved, will empower the directors of these two associated companies to proceed with their investigations on the Wanlockhead Leadhill Lead-Zinc properties over which the companies jointly hold an option.

Mr. K. O. Hunter, chairman, states that the financial aspect of the proposed development requires close consideration. During the next 18 months, he said, it is proposed to spend in unwatering, recovery, development and sampling, a sum not exceeding £200,000, including expenditure to date, Siamese Tin and Bangrin to provide this amount in equal portions. A substantial amount of this capital will be represented by plant, machinery and sundry equipment which could be readily resold if a decision not to proceed further were taken at any time. Subsequent expenditure required to bring the property into production, including a full scale mill and the acquisition of the mineral rights would be in the neighbourhood of £250,000, Mr. Hunter declared, making a total expenditure of approximately £450,000.

Concluding his statement the chairman said that future developments must of necessity be entirely dependent upon the extent of the ore reserves revealed by the general exploratory work described above. This work, should occupy about 18 months, and assuming that results so warrant, provision of a mill might take a further two years, providing there is no undue delay in the obtaining of the necessary plant. The project cannot therefore be expected to reach the profit earning stage in less than 4-5 years.

Tanjong Tin's Excellent All Round Results

With two dredges operating throughout the whole of the year 1951 as compared with only one dredge operating for the full period and the other operating for only one month in the previous year, it was expected that results of Tanjong Tin Dredging for 1951 would show an appreciable improvement over those achieved in 1950.

Year to Dec. 31	*Per Cubic Yard* *Dredged* (000)	*Yield* (*lb.*)	*Cost* *s. d.*	*Output* (*tons*)	*Price Received* (*per ton*) £ s. d.
1950	1,763.4	0.57	10	453	484 13 0
1951	4,397.4	0.59	8	1,154	632 11 5

But the vast expansion in the volume of ground treated at a slightly higher grade which resulted in the lowering of working costs per cu. yd. for the fourth year in succession and an increase in the output by no less than 701 tons must have exceeded the most optimistic estimations. Furthermore, the price received per ton tin ore advanced by £147 to £632, all of which features combined happily to lift revenue from ore sales to over three times the total receipts received in the preceding year. Mining costs again advanced during the year and the company was called upon to bear a much heavier burden of taxation, but even so the net profit, though considerably reduced, remained impressive.

Year to Dec. 31	*Ore Sales** £	*Mining Costs* £	*Tax* £	*Net Profit* £	*Dividend* %	*To Reserves* £
1950	219,504	73,972	68,000	68,503	25	46,000
1951	730,261	162,479	306,859	235,931	100	101,000

*Less duty and charges.

Shareholders enjoyed to the full the improved results and received a total dividend distribution of 100 per cent. which absorbed £98,724. General reserve was immeasurably strengthened by the allocation of £100,000 bringing that account up to £175,000 and the transference of £1,000 to investment reserve doubled the amount in that account. Despite these heavy appropriations the carry forward at the fiscal year end was £42,857 compared with £6,282 brought in.

Mr. R. C. Savory, chairman, in his statement circulated with the report and accounts again warned shareholders that they could expect a considerable rise in costs during the current year.

The results for the current year are satisfactory total production for the first five months amounting to 502 tons. The annual meeting will be held in London on July 10.

Kinta Tin Earns and Pays More but Produces Less

The lessening of the amount of water available for cutting due to an unusually prolonged dry spell together with the concentration of operations at Damak in the lower lift from March to December were the chief factors responsible for the decline in the yardage treated and lowered total production of Kinta Tin Mines during the calendar year 1951.

Indeed, output might have been much lower but for the fact that the ground treated in the Damak section was relatively high grade, the 263,700 cu. yd. treated averaging out at 1.24 lb. per cu. yd.

Year to Dec. 31	*Per cubic yard.* *Treated* (000)	*Yield* (*lb.*)	*Cost* (*Pence*)	*Output* (*tons*)	*Price Received* (*per ton*) £ s. d.
1950	1,209.1	0.75	9.8	403	468 18 7
1951	855	1.00	17.0	381	629 2 10

In any event, the modest decline in production did not adversely affect the financial results, as the price received per ton tin ore improved by £260. Thus, as can be seen from the table below, the net profit was still higher than in the preceding year even after providing for higher working costs and heavier taxation liabilities.

Year to Dec. 31	*Ore Sales** £	*Mining Costs* £	*Tax* £	*Net Profit* £	*To Reserves* £	*Dividend* %
1950	188,696	50,539	98,511	65,024	32,000	65
1951	240,514	62,397	140,070	70,583	28,500	75

*Less duty and charges.

The allocation to general reserve of £25,000 (£30,000) brought that account's total up to £155,000 while the investment reserve account was raised to £5,500 by the transference of £3,500 against £2,000 in 1950. Shareholders got 10 per cent more than in the preceding year, the total distribution of 75 per cent on the issued capital of £120,000 in 5s. shares absorbing £47,700, leaving the carry forward at £13,954 against £11,893 brought in.

Mr. R. C. Savory, chairman, in his statement accompanying the accounts said that prospects for the current year could be regarded as "fairly satisfactory," although unlikely to equal the figures achieved during the year under review. Output of tin ore for the first five months of the current year was 114 tons.

The annual meeting will be held in London on July 10.

Company Shorts

H.E. Prop. Earns More But Pays Same.—H.E. Proprietary during the year 1951 showed a net profit, after tax, of £63,879 compared with £56,317 in 1950. However, the improvement in the results was not enough to raise the dividend which at 30 per cent remained unchanged for the sixth year in succession. The carry forward at the fiscal year end amounted to £98,007 compared with £75,722 brought in.

T.G.M. Reduces Dividend.—Transvaal Gold Mining Estates during 1951 milled 336,000 tons or 33,800 tons more than in the previous year. Yield and revenue per ton milled were lower by 0.29 dwt. and 2s. 1d. respectively, and as working costs rose by 2s. 1d. per ton milled, to 45s. 9d. working profit was reduced to 1s. 1d. per ton. However, these figures are not strictly comparable, owing to the amalgamation in August, 1950, with Glynn's, Lydenburg. The increase in the tonnage throughput was due chiefly to the inclusion of ore from the Glynn section, while the decline in yield and working revenue was the result of the exhaustion of high-grade ore, from the Theta mine.

Profit for the year amounted to £64,344 against £123,347 but taxation liabilities only required £508 compared with £9,209 previously. The total dividend distribution was reduced to 6¼ per cent (10 per cent) absorbing £53,281 (£80,875) and the carry forward at the fiscal year end was £142,239 compared with £131,543.

Rising Costs Reduce Profits of Globe & Phoenix.—Mr. A. Macquisten, chairman, of The Globe and Phoenix Gold Mining Co. in his statement accompanying the report and accounts for the year 1951 impliedly approved the recent decision of the Southern Rhodesian Government to grant a depletion allowance of 10 per cent per annum on the gross production of gold mines subject to a maximum of 50 per cent on the taxable income, but added, what must be in the minds of many, "it remains for the British Chancellor to acknowledge the reasons behind this and not take the opportunity of attracting the amount of the relief to the British Treasury. That would be exploiting the Colonies indeed."

Total ore crushed during the year amounted to 72,600 tons, having an average grade of 9.76 dwt., yielding 37,998 oz., an increase of the 1950 figures of 100 tons, 0.33 dwt. and 3,600 oz. Net profit for the year, after providing for all expenses including £140,509 (£116,167) for taxation was £78,960 compared with £97,118. This reduction in profit was largely due to increased working costs which, excluding the cost of residues treated in the current plant and the retreatment plant, rose from 53s. 11d. to 62s. 2d. per ton. General reserve was strengthened by the allocation of £50,000 (same) and after providing £3,357 (£3,171) for depreciation the carry forward was £30,441 compared with £57,338 brought in.

Rezende Mines Maintain Dividend.—The report and accounts of Rezende Mines for the calendar year 1951 showed that profit for the year amounted to £6,242, compared with £2,296. The dividend was maintained at 1d. per 1s. share and the balance carried forward was slightly lower at £992, against £1,019 previously. The annual meeting will be held in Salisbury, Southern Rhodesia, on July 18, Mr. Bailey Southwell is chairman.

Obituary

LEONARD ALDRIDGE

A memorial service was held at St. Michael's, Cornhill on June 17 for Mr. Leonard Aldridge who died recently at Rapallo.

Born in 1892, he was an international figure in many parts of the world, had travelled widely and made geological surveys in Africa, Australia, the Pacific islands and Portugal. Through his chairmanship of the Mitchell-Cotts group which he founded and of various shipping companies, he was an important link in British trading travel and transport agencies. As chairman of the Associated Manganese Mines in South Africa he was a leading influence in the South African manganese business. Through the Anglo-French Consolidated Investment Corporation he exercized an important influence on base metal mining undertakings, particularly in Souh Africa. His interests in coal included the deputy-chairmanship of the Natal Navigation Collieries, and he was also director of the Transvaal Navigation Coal Co. of the Northern Natal Navigation Collieries, and Vryheid Railway Coal & Iron Co.

He acquired the Tilmanstone Collieries after the death of Mr. Tilden-Smith and was at one time the chairman of the Huelva Copper and Sulphur Mine. In the iron and steel industry he was a director of Dunderland Holdings Ltd. He was a director of Johnson Phillips, of Goodlass Wall and Lead Industries, of Alldays and Onions, and chairman of Fraser & Chalmers (S.A.) Ltd.

He had a distinguished record during the second world war, when he held a number of honorary civilian and para-military government appointments in the Middle East. Early in 1942 he joined the Middle East Supply Centre in an honorary capacity. He made a unique contribution to the war effort in this area where his organization of local food supplies enable the Middle East to be self-supporting to a far greater extent than had been thought possible and thereby saved much shipping space. He was economic adviser to the British Minister in the Levant States, to the Spears' Mission; chief representative of the Middle East supply centre in Egypt and the Levant, and a member of Lord Moyne's manpower committee in the Middle East. Aldridge's work also contributed to securing the Eighth Army's lines of communications and so brought Aldridge to the notice of Mr. Casey, then a member of the War Cabinet, who was so impressed with his capacities that later, when Governor of Bengal, he asked Aldridge to organize supplies in this famine striken area. Aldridge here again achieved great success on another vast and difficult problem.

Aldridge was a man of distant vision, inflexible determination and great practical executive ability. He was able to inspire loyalty and enthusiasm in those who worked for him and this he repaid generously, both by personal interest and many acts of kindness. He supported several charities particularly in the East End of London.

It is often said that what this country needs is a return to the spirit of the Elizabethan age. Aldridge exactly fulfilled this concept. He was a merchant, an individualist, with a love of adventure that yet was controlled and directed towards sound colonial development and commonwealth relationship. For these services he was made a C.B.E. in 1946 and was also a Fellow of the Geological Society.

SIR SAMUEL OSBORN

The death occurred last week, at the age of 87, of Sir Samuel Osborn. He was the second son of the founder of the firm which bears his name and entered the business in 1882, becoming a partner in 1889 and a director in 1905. He was appointed chairman in 1936 and President in 1948. He played a very important part in the civic life of Sheffield and was elected Lord Mayor in 1912. He was a past president of the Sheffield Society of Engineers and Metallurgists and was Pro-Chancellor of Sheffield University, from which he received the honorary degree of LL.D. He was particularly interested in educational and welfare movements and was President of the Sheffield branch of the Y.M.C.A.

AFRICAN AND EUROPEAN INVESTMENT COMPANY

(Incorporated in the Union of South Africa)

The Annual General Meeting of African and European Investment Co. Ltd. was held on June 13 in Johannesburg.

Mr. T. Coulter (managing director), who presided in the absence abroad of the chairman, Mr. R. B. Hagart, in the course of his speech said:

The profit and loss account shows that revenue for the year at £977,654 was £263,172 more than in 1950. Dividends and interest receipts improved from £262,173 to £309,483, and in this regard it is noteworthy that a large part of the company's investments is in developing Orange Free State gold mining companies and in new colliery and asbestos companies. As these companies come into production dividend income will increase considerably. Profit on share transactions was satisfactory at £460,158.

After allowing for general expenses, £44,623, and interest on notes, £76,500, the profit on the year's operations was £856,531, an improvement of £187,911 on the 1950 figure. Dividends on the six per cent Preference stock were paid and the Ordinary stock declaration was maintained at 2s. 6d. per stock unit. Unappropriated profits carried to the balance sheet were £236,286. Your attention is drawn to the increase in the Preference capital to £1,750,000 by the issue during the year of 900,000 stock units of 10s. each at 11s. per unit.

FINANCE

As I have indicated, the cash resources of the company were inadequate for the purpose of following the investment policy to its logical conclusion.

In the normal course of events this position would have been met by an issue of Ordinary shares, but present circumstances, governed as they are by the unsettled state of South African politics and by uncertainty in international money markets, made that course inadvisable.

Your Board has accordingly made other arrangements in the form of an unsecured loan of £2,000,000 to be raised as and when required. The rate of interest to be paid is 5¼ per cent per annum on the balance from time to time and the loan may be repaid, in whole or in part, after June 30, 1954, but in full by not later than December 31, 1954. It is anticipated that by these dates, progress in the O.F.S. goldfield, where our major investments lie, will be such that no difficulty will be experienced in arranging finance for the purpose of loan repayment.

ORANGE FREE STATE INTERESTS

The company's principal interests consist of substantial shareholdings in Welkom Gold Mining Co. Ltd., President Steyn Gold Mining Co. Ltd., and President Brand Gold Mining Co. Ltd.

WELKOM GOLD MINING CO. LTD.

The main haulage connecting the two shafts was completed in October, 1951, and stoping operations, on a limited scale, commenced early in November. Since then, these operations have gradually increased and in April, 1952, a maiden profit of £1,043 was made and a steady increase in profits can now be expected. The reduction plant is capable of treating 69,000 tons per month and it is hoped to develop the mine so that, by extending the plant, an output of 100,000 tons per month can be handled. The rate of underground development is satisfactory and a total of 112,659 ft. had been accomplished up to the end of March, 1952. Of this 28,493 ft. was on Basal Reef and 28,080 ft. was sampled, 60.63 per cent proving payable, averaging 361 in.-dwt. A limited amount of development on "B" Reef indicates that tonnage may become available in time from this source.

Two boreholes have been sunk on the farm "Alma," which indicate the existence in that section of a large tonnage of payable ore at shallow depth.

PRESIDENT STEYN GOLD MINING CO. LTD.

Some delays were experienced through the intersection of water-bearing fissures, but good progress was made in shaft sinking at the mine during 1951. In October, 1951, No. 1 shaft intersected the Basal Reef at a depth of 4,152 ft. Samples were taken at 5 ft. intervals round the perimeter of the shaft and gave the satisfactory average value of 36.66 dwt. over 6.41 in., which is equivalent to 235 in.-dwt.

Towards the end of April, 1952, No. 2 shaft intersected the Basal Reef at a depth of 4,963 ft. below the collar. The reef was sampled at intervals of 5 ft. round the perimeter of the shaft, and the 22 sections averaged 71.56 dwt. over a true width of 13.5 in., equivalent to 966 in.-dwt.

No. 1 shaft was stopped temporarily at a depth of 4,450 ft. to allow an early start to be made on the main connecting haulage with No. 2 shaft. The ventilation wall was completed in record time and by the beginning of March the shaft was equipped and work was started on the main ore passes and in the development drives. It is proposed to develop on four levels but it will be some time before the necessary crosscutting in country rock is completed on all levels. Towards the end of March the reef was intersected in the 4,250 level and 26 ft. of reef were exposed. Sixty per cent proved payable at an average value of 38.32 dwt over 9.33 in., equivalent to 358 in.-dwt.

During the past quarter most of the development work has been in crosscuts to the reef, but it is expected that during the current quarter a large development footage will be accomplished on reef.

It is proposed to continue sinking No. 1 shaft to a depth of 5,250 ft. while development work is proceeding. Sinking will therefore continue at a reduced speed so as not to interfere with development.

The sinking of No. 2 shaft has been completed to a final depth of 5,072 ft. and, as soon as the shaft is fully equipped, development operations will start to meet the haulage being advanced from No. 1 shaft. It is essential that the connection between the two shafts should be made as soon as possible so that stopes can be started. The erection of the reduction plant is well advanced and it will be possible to run the plant for metallurgical tests using rock from development before any tonnage is available from stoping. Every effort will be made to carry out the rapid underground development of the mine and it is hoped that production on a limited scale will start early in 1953, and that monthly working profits will be earned from about the middle of 1953 onwards. Revenue from sales of gold before monthly working profits are earned will assist materially in financing your company's operations during the first half of 1953.

PRESIDENT BRAND GOLD MINING CO. LTD.

The rate of progress in sinking Nos. 1 and 2 shafts on this property was frequently delayed during the year by the intersection of water-bearing fissures and the friable nature of the ground, but towards the end of last month No. 1 shaft had reached a depth of 4,232 ft. and No. 2 shaft a depth of 3,110 ft. As soon as No. 1 shaft has intersected the reef, work will be started on a haulage to connect the two shafts. Since the end of last year borehole W.8 on the farm Welkom No. 80 intersected Basal Reef at a depth of 3,981 ft., having an average value of 111.6 dwt. over a true width of 29.15 in., equivalent to 3,253 in.-dwt. This borehole augurs well for the northern portion of the property towards the south-western boundary of Welkom.

COAL

Apart from its direct shareholdings in the various colliery companies of the group and others, the company's principal coal interests are held through the medium of our associated company, the Vereeniging Estates Ltd.

The producing companies under our administration include: Amalgamated Collieries of South Africa Ltd., South African Coal Estates (Witbank) Ltd., Springbok Colliery Ltd., The Coronation Collieries Ltd., Vryheid Coronation Ltd., Blesbok Colliery Ltd., and these concerns during 1951 sold 11,833,000 tons of coal, equal to 41 per cent of the total Union production.

Developing collieries under our administration are: New Largo Colliery Ltd., Vierfontein Colliery (Proprietary) Ltd., Natal Coal Exploration Co. Ltd., and of these the first should be in production about the end of this year, the second early in 1953 and the third early in 1954.

In addition to the foregoing the company has acquired large interests in the following Natal producers: Natal Anthracite Colliery Ltd., The Newcastle-Platberg Colliery Ltd.

In the chairman's address to you last year some warning was given of the impending transport crisis, the full effects of which are still being felt by the coal mining industry. These decreases were wholly due to railway transport deficiencies and many hours of working time were lost by the collieries as a result of the non-arrival of trucks. This winter the transport position appears to have worsened.

As you may know, an absolute embargo has been imposed by the Government on exports of coal from the Transvaal and at the present time only small quantities of coal for bunker purposes are being railed to the Port of Lourenco Marques.

ASBESTOS

For many years the company has been interested in asbestos through the medium of royalties earned on amosite mined by Amosa Ltd., a subsidiary of Cape Asbestos Ltd., on certain of the company's farms in the Lydenburg district.

Amosa Ltd. has successfully developed a large market for amosite in the insulation trade, particularly in the United Kingdom, the U.S.A., and in Australia, and with the growth of this business it is likely that our royalties from amosite will form an appreciable part of the company's revenue.

FARMING

As stockholders are aware, the company owns and operates two farms, Palmietkuil No. 10, District Springs, and Vlakfontein No. 65, District Heidelberg, under a common organization known as Umbila Estate.

The report and accounts were adopted.

ST. JOHN D'EL REY MINING CO. LTD.

DIVIDEND MAINTAINED

The Ordinary General Meeting of the Company was held at Winchester House, Old Broad Street, London, E.C.2, on June 12.

The **Right Hon. Sir Hugh O'Neill, Bart., P.C., M.P.** (Chairman) who presided, in the course of his speech said:—

After provision for London Expenses and taxation, the profit for the year amounts to £114,232 compared with £137,722 in 1950. Adding the profit to the sum of £55,091 brought forward from 1950, there is a sum of £169,323 to be dealt with. The Board recommend a final Dividend of 7½ per cent nett on the Ordinary Stock, making, with the interim Dividend of 2½ per cent already paid, 10 per cent nett for the year, which is the same as was paid in respect of the year 1950.

I would again call attention to the fact that remittances out of the year's production are limited and that from the amount of sterling available annually, money has to be provided for payment of stores and London expenses and, in addition, for Income Tax on profits which it has not been possible to remit to this country. Representations have been made by the Overseas Mining Association to the Chancellor of the Exchequer on this very unfair burden to which industries operating overseas are subject, but so far without result.

Early this year the Brazilian Government issued a Decree restricting the remittances of profits which would be made available to foreign concerns in Brazil. This Decree was much critized, both in this country and the United States. We, as a gold producing company, have always been accorded special treatment as regards remittances and I do not think we shall be unduly prejudiced by this legislation.

I hesitate to comment on the new Excess Profits Levy as there have been so many changes and alterations in the basis and incidence of this tax. But it is obvious that if the levy is maintained, in addition to other forms of prejudicial taxation, there is little encouragement for companies such as ours to embark on a large programme of capital expenditure such as we have in view.

The tonnage treated during the year amounted to 399,800 tons. The average grade was 10.42 grammes (6.7 dwt.) and the value of the bullion produced was £2,802,855. The grade of the ore produced last year was well within the average of the reserves at both mines. The programme of stope development was pushed forward as fast as possible and in consequence the expenditure on that work increased from £71,105 to £96,303. The Assistant Superintendent and Mine Engineer reports that it is hoped that this expenditure will be reduced during the present year, but we shall continue to develop and prepare additional stopes below Horizon 20 in order to make available ore of a higher grade.

Working Cost shows a slight reduction of 2s. 2½d. per ton crushed, but the cost of development has increased by 11½d.

The figures for production expressed in kilos of ore produced per man per day show a further improvement at both mines.

The disposal of 80 per cent of the company's gold on the free market presented some difficulties towards the end of last year. The slackening of demand coincided with a general reduction in the price of gold in the free markets of the world, and consequently our stock of unsold gold began to pile up. To meet this situation we were forced to reduce our price from 42 cruzeiros per gramme, which we had been receiving since February, 1949, to 40 cruzeiros per gramme. The demand then increased and early in January of this year the stock on hand had been disposed of and it was possible gradually to increase the price to 42 cruzeiros. During the month of April the price was raised by a further 2 cruzeiros to 44 cruzeiros per gramme, at which it remains at the present time. We are told that the demand is good, but I would warn Stockholders against relying on an indefinite continuance of this high price, for with a system under which we are allowed to sell 80 per cent of our product on the internal market it must follow that the price we can get will vary. If we had to sell the whole of our gold at the fixed world price, we should obviously be in a very difficult situation.

The Ore Reserves at the end of 1951 amounted to 7,785,000 tons. The average indicated grade of these reserves is 12.45 grammes (8 dwt.).

With regard to the programme of capital expenditure, mentioned in last year's report, which has the object of reducing costs and thus meeting any downward fluctuation in the price of gold, a start has been made with the new shaft which has been sunk to a depth of 146 ft. It has since become necessary to suspend sinking operations during the concreting of the shaft collar and the erection of the temporary head frame for sinking into depth. The concrete collar has been completed and we hope that the temporary head gear will shortly be ready to enable sinking to be resumed. The shaft is at present in solid rock and the indications are that this good ground may continue.

A considerable amount of additional plant is on order to enable the increased tonnage to be dealt with, but deliveries are slow and there may be some delay before the work in hand is complete, although every effort will be made to overcome this.

The report and accounts were adopted.

CONSOLIDATED MURCHISON (TRANSVAAL)

CONSERVATION OF CASH RESOURCES

The Eighteenth Annual General Meeting of Consolidated Murchison (Transvaal) Goldfields & Development Co. Ltd., was held on June 6, in Johannesburg. The following are extracts from the circulated statement by the chairman, **Mr. S. G. Menell,** and from the short supplementary address delivered by the deputy chairman at the meeting.

Production for 1951 amounted to 27,503 s.tons of antimony concentrates and cobbed ore, and 9,834.28 f.oz. of gold, compared with 14,545 s.tons of concentrates and cobbed ore and 10,904.67 f.oz. of gold for 1950. The production for the three months ended March, 1952, was 6,131 s.tons of concentrates and cobbed ore. Compared with the last quarter of 1951, this shows a decrease of 1,141 s.tons, reflecting a diminution of orders placed for execution during 1952. An improvement in the grade of available ore and increased flotation facilities enabled stocks to be built up. At the year-end stocks of ore and concentrates amounted to 3,435 s.tons.

The net profit for the year was £2,659,051. When added to the balance on appropriation account of £144,152, £2,803,203 were made available. Dividends Nos. 14 and 15, aggregating 800 per cent, absorbed £1,664,000. £773,500 was reserved for taxation provisions, £125,024 was appropriated for capital expenditure, and a balance of £240,679 was carried forward.

The increased profit as compared with that of the previous year (£554,702) was due to the exceptional demand for antimony both in America and in the United Kingdom and to the high price of antimony prevailing for the greater part of the year. During 1951 the price for 99 per cent metal stood at £250 per l.ton. This advanced rapidly in stages to £390 per l.ton on April 5, which price remained in force until November 12, when it receded to £365. On March 3, 1952, the price of 99 per cent metal was again reduced to £340 per l.ton and again to £305 per l.ton on April 28.

DEPUTY CHAIRMAN'S REMARKS

The deputy chairman said that there has been a further recession in 99 per cent antimony to £270 per ton due to an over-supply of this metal in world markets. It is not possible to indicate to what extent, if any, there will be a further recession. In the chairman's speech last year shareholders were warned that the then strong demand should not be regarded as permanent. We have on hand at the moment a substantial stock of broken ore available for milling whenever required. It has been decided that for the time being production should be curtailed to conserve cash funds. This is a purely temporary curtailment and at short notice production of antimony concentrates could be increased substantially. At the moment negotiations are taking place for the extension of antimony sales contracts, but no finality has as yet been reached.

DEVELOPMENT OPERATIONS

Other extracts from the chairman's circulated statement are:

During the year quotation facilities were granted in respect of the company's shares on the London Stock Exchange. Messrs. Anglo-Transvaal Trustees Ltd., were appointed London secretaries, and a transfer register is maintained at their offices.

The rate of tax payable by base-metal mines has been increased to 6s. per £, and it is estimated that the additional tax liability of the company will be approximately £64,400.

During the year 6,787 ft. of development were carried out on Gravelotte section of the mine. 2,794 ft. were sampled, of which 2,404 ft., equivalent to 86 per cent, were deemed payable on account of their combined antimony and gold content.

Mining and development operations were continuing satisfactorily on a small scale on the Jack, Weigel and Monarch sections.

The ore reserves at the end of the year which were deemed to be payable on account of antimony and gold content combined, amounted to 352,000 tons.

The report and accounts were adopted, and the retiring directors, Messrs. B. L. Bernstein and L. P. Kent, were re-elected.

A special resolution amending the articles of association of the company was passed without modification.

DIVIDENDS

Apex Mines 15%
Apex (Trinidad) Oilfields 10% *i*
Blyvooruitzicht Gold 1s. 6d. (Aug. 7)
City Deep 1s. 6d. (Aug. 7)
Cons. Main Reef Mines 2s. 9d. (Aug. 7)
Crown Mines 2s. 6d. (Aug. 7)
Durban Roodepoort Deep 2s. 6d. (Aug. 7)
East Rand Proprietary 2s. 6d. (Aug. 7)
Modder. East 2s. (Aug. 7)
Rose Deep 1s. 9d. (Aug. 7)
Transvaal Gold Mg. Estates 9d. (Aug. 7)

i interim * Tax free

BRITISH-BORNEO PETROLEUM SYNDICATE LIMITED

The Thirty-Eighth Annual General Meeting of the British-Borneo Petroleum Syndicate Ltd., was held in London on June 17, **Mr. Malcolm Maclachlan** (chairman and managing director) presiding.

In the course of his speech the chairman said:—

The Profit and Loss Account shows that the revenue for the year, which is derived from our royalty on the production of oil in Brunei, dividends from our investments, and profits on sales of securities, amounted to £286,000.

We now recommend payment in respect of the year to March 31 last, of dividend No. 44 of 1s. 1d. per stock unit free of income tax. The dividend will be paid on July 9 next. The profit for the year constitutes a fresh record and has enabled us to recommend an increase in the rate of dividend which is payable on the larger capital, and represents an increase of 30 per cent in the cash receivable by the stockholders.

At the same time the burden of taxation has once again been increased and out of our earnings this year we shall pay to the State approximately £3 4s. 7d. for every £1 which is received by the owners of the business.

The latest tax imposed upon industry was said to be designed, in the words of the Conservative manifesto, to cover "the fortuitous rise in company profits because of the abnormal process of rearmament." The machinery to tax these profits has emerged in the form of the recent impost to which I prefer to refer as the Excess Levy and for which we have made provision in respect of the last three months of the year under review during which the tax is to be operative.

It is curious that whereas responsible leaders of all political parties have from time to time condemned these so called Excess Profits taxes as bad taxes, they continue to be imposed by all parties. The case of this company is a clear illustration of the folly and injustice of a levy of this kind. Our profits are mainly derived from our royalty on the production of oil in Brunei which does not vary with the price of oil; thus our profits have not the remotest connection with a "fortuitous rise in company profits because of the abnormal process of rearmament." Had the developments in the Seria field since the war taken place a few years earlier the revenue which we derive would have been described as normal profit; as it is, the same revenue is stigmatized with the description of "excess profits" and is made subject to further taxation. Certain amendments to the original Finance Bill have been introduced to remove some of the more blatant injustices but until the Act is in final form we shall not know to what extent we shall be qualified to benefit by them.

In addition to the excessive rates of taxation, the narrow and rigid treatment under the British tax code of such matters as depletion allowances and the taxation of profits earned overseas is placing British enterprises operating mineral concessions overseas at so great a disadvantage with their foreign competitors, that the survival of London as a centre of oil and mining finance is imperilled.

To turn to a more rewarding subject, a review of our interests, I may remind you that one of the original objects of this company was the exploration for oil in British Borneo and adjacent territories. After many years work and very considerable expenditure we made arrangements under which the British Malayan Petroleum Co., a member of the Shell Group, took over our oil rights. Our interests now consist of the right to receive a royalty on all oil production in the State of Brunei and also on any oil production which may be obtained from the Klias Peninsula in British North Borneo. During the year the active production programme of the British Malayan Co. in the Seria field has continued with satisfactory results, and although Canada has now achieved the position of the largest oil producer in the British Commonwealth, the Seria field in Brunei is the largest single producing field. In consequence the royalty we have received has shown a further increase and has made the principal contribution to the increased profit for the year under review.

The operations of Apex (Trinidad) Oilfields continue to be successful and oil production for the year to September 30, 1951, amounted to 3,193,000 bbl.

The oil production of Ultramar Co. Ltd., in which we have a moderate investment, continues to show steady imrpovement and the financial position of the company has been strengthened.

In addition to our substantial interests in the oil industry, we have a number of general investments. The following is an analysis of our investments which have Stock Exchange quotations, based upon the Stock Exchange valuation at the date of our balance sheet. Oil shares 58 per cent, Mining Finance and Mining Companies 30 per cent, Home Industrials 7 per cent, National Boards and Corporation Stocks 3 per cent and American Securities 2 per cent. The Stock Exchange value of these investments is substantially in excess of the amount at which they are included in the balance sheet.

The report and accounts were unanimously adopted.

ANGLO AMERICAN CORPORATION GROUP OF COLLIERIES

DECLARATION OF COLLIERY DIVIDENDS

NOTICE IS HEREBY GIVEN that DIVIDENDS have been declared payable to shareholders/stockholders registered in the books of the undermentioned Companies at the close of business on June 30, 1952.

The Dividends are declared in the currency of the Union of South Africa and become due on July 1, 1952. Warrants will be posted from the Head and London Offices on or about August 15, 1952.

The Dividends are payable subject to the usual conditions which can be inspected at the Head and London Offices of the Companies.

The Transfer Books and Register of Members will be closed in each case from July 1 to 5, 1952, both days inclusive.

The effective rate of Non-Resident Shareholders' Tax is 7½ per cent.

Name of Company (Each of which is incorporated in the Union of South Africa)	Dividend No.	Rate of Dividend
Amalgamated Collieries of South Africa Limited ...	32 (Interim)	1s. 3d. per share
*South African Coal Estates (Witbank) Limited ...	59 (Final)	2s. 3d.† per share
Springbok Colliery Limited	10 (Interim)	6d. per unit of Stock

*The estimated net profit of South African Coal Estates (Witbank) Ltd. for the year ending June 30, 1952, is £258,510 before providing for taxation. This figure is provisional and subject to audit. The profit for the year ended June 30, 1951, was £312,562 before providing for taxation.

†The final dividend of 2s. 3d. together with the interim dividend of 1s. 9d. declared in December, 1951, makes a total of 4s. for the financial year, which is the same as for the previous year.

By Order of the Boards,

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA LTD.

11 Old Jewry, London, E.C.2. June 13, 1952.

W. C. SQUIRE, Assistant London Secretary

YOUNG MINING ENGINEER required for West African base metal mine. Should be good surveyor. Tours 12-18 months. Leave, on full pay and usual conditions. Write giving full particulars. Box 616 c/o Dawson's, 129, Cannon Street, E.C.4.

QUALIFIED UNDERGROUND MINE SUPERINTENDENT required for property in West Africa. Good underground experience essential. Tours of service 12 to 18 months with full pay on leave. Passage out and home and furnished quarters provided. Write full particulars stating age. Box 615, c/o Dawson's, 129, Cannon Street, E.C.4.

THE DOWSETT GROUP OF COMPANIES have the following plant available for sale as lying at Griffiths Crossing, Caernarvon, North Wales:—

Four belt conveyors—170 ft. 7½ in. length overall, 38 ft. 2 in. length overall, 32 ft. 4 in. length overall, 75 ft. 7½ in. overall—complete with 12 in. wide rubber belting but without motors and three slat conveyors—99 ft. 6 in. length overall, 49 ft. 5 in. length overall, 96 ft. length overall—complete with 12 in. wide wood slats and each conveyor with 3 h.p. Crofts electric motor and £3,000 or near offer is required for these conveyors.

The figures given indicate the values we placed on these items of plant but we are prepared to give favourable consideration to any offer which may be submitted for any items and any further information which may be required can be obtained from Dow-Mac (Plant & Transport) Limited, Tallington, Stamford, Lincs.

Telephone: Peterborough 4501.

SITUATIONS VACANT ADVERTISED.—*The Notification of Vacancies Order, 1952, must be complied with where applicable.*

THE CENTRAL MINING-RAND MINES GROUP

DECLARATION OF DIVIDENDS

NOTICE IS HEREBY GIVEN that DIVIDENDS have been declared payable to shareholders registered in the books of the undermentioned Companies at the close of business on June 30, 1952, and to persons presenting the respective Coupons detached from Share Warrants. Dividends on shares included in Share Warrants will be paid in terms of a notice to be published later by the London Secretaries of the Companies.

The Dividends are declared in South African currency and become due on July 1, 1952. Payment from the London Office will be in British currency at par provided that should there be any difference that may be regarded by the Boards as material between the two currencies on July 1, 1952, payment will be made on the basis of the equivalent British currency calculated at the rate of exchange ruling on that date.

Warrants in payment will be posted on or about August 7, 1952, to shareholders at their registered addresses or in accordance with their written instructions. Warrants will be despatched from the Head Office, Johannesburg, to addresses in Africa south of the Equator and from the London Office to addresses elsewhere. Instructions which will necessitate an alteration in the Office from which payment is to be made must be accepted by the Companies on or before June 30, 1952. Other changes of dividend instructions to apply to these dividends must be received by the Companies not later than July 28, 1952.

The Transfer Books and Registers of Members will be closed in each case from July 1 to 7, 1952, both days inclusive.

Name of Company (Each incorporated in the Union of South Africa)	Dividend No.	Coupon No.	Dividend Per Share s.	d.
Rand Mines, Limited ...	98	98	3	0
Blyvooruitzicht Gold Mining Company, Limited ...	13	—	1	6
City Deep, Limited	65	65	1	6
Consolidated Main Reef Mines and Estate Limited ...	85	82	2	9
Crown Mines, Limited ...	102	102	2	6
Durban Roodepoort Deep, Limited	63	63	2	6
East Rand Proprietary Mines, Limited	65	66	2	6
Modderfontein East, Limited	50	31	2	0
Rose Deep, Limited	94	94	1	9
Transvaal Gold Mining Estates, Limited	83	83	0	9

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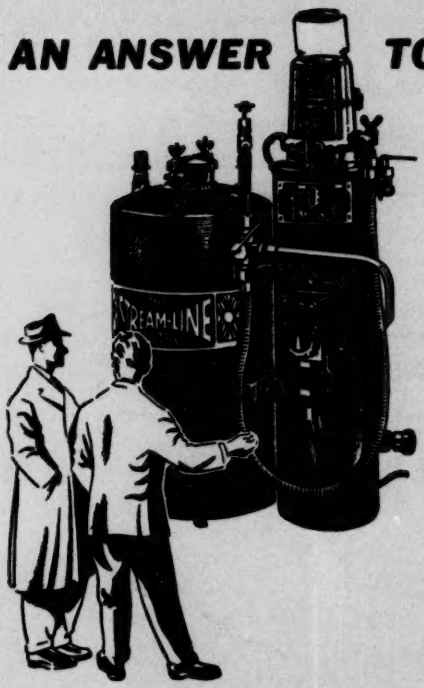

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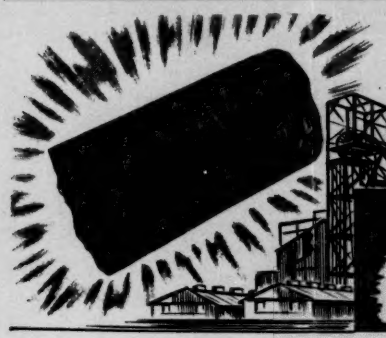

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